

FURTHER OBSERVATIONS

ON

CHLOROFORM IN THE PRACTICE OF
MIDWIFERY.

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CHLOROFORM IN THE PRACTICE OF MIDWIFERY.

SOME observations on the use of chloroform in the practice of midwifery were published in January 1848, with illustrative cases; the subject was then new, and not a little obscured by the clouds of controversy that were gathering about it. The writer was anxious to avoid, as far as possible, taking part in these discussions, but, at the same time, was equally desirous to observe its effects both in assisted and unassisted labour. It was desirable to determine not only its nature as an anodyne, but its immunity from subsequent mischief to the patient; and, with these views, he continued to give chloroform cautiously, and to observe its effects according as opportunity presented itself. Three questions proposed themselves for examination. I. Whether chloroform interfered with the action of the uterus during labour? II. Whether the safety of the child was hazarded by its administration? III. Whether any ill effects subsequently manifested themselves by which the safety of the patient was compromised?

The first cases in which chloroform was given by the writer (some of which were published¹) gave evidence in the negative; since then, however, much injury is said to have been produced by it, and a sufficient number of fatal accidents have occurred from its use, to render a careful and impartial inquiry into its properties absolutely es-

¹ Chloroform in the Practice of Midwifery, by Ed. W. Murphy, M.D. Taylor and Walton, London.

sential, in order to determine its value. Chloroform, and those who administer it, have been charged with many high crimes and misdemeanours: it is said to cause hemorrhage, convulsions, ruptured uterus, and even "sloughing of the maternal passages from impaction of the head during labour;"¹ and, as to its after-effects, "prolonged sickness, sickness with depression following nervous excitement, continuing for days and for months, cases of threatened death from apoplexy, of mania, of bronchitis, pneumonia, prolonged giddiness, loss of memory, paralysis,"² form only a part of the catalogue of ills that stand at the head of the indictments. Those also who are bold enough to use it are liable to the charge of committing "an act at once unjustifiable, and which it is questioned if it will not be considered criminal according to law."³

It would be a digression from the important question before us, almost equally unjustifiable, if, influenced by such language, the writer were to deviate into a refutation of such charges—if, excited by the spirit of controversy, he were to enter its arena, to rebut and confute, to meet charge by charge, and attack with repulse. However it might serve the purpose of an ephemeral triumph, nevertheless it would lead us very far away from the investigation of truth—it would leave the unbiassed practitioner in doubt, whether chloroform is a valuable agent in the practice of midwifery or not. Besides, the observation of the effects of chloroform in parturition is more important than abstract discussions on the propriety of employing it, and with this view the writer has been more anxious to judge for himself of its true value, by testing it in practice, than to decide whether he should administer it, by the *a priori* arguments that an animated controversy has elicited.

In the selection of cases for its administration, the first class chosen were those in which operations were necessary. In such instances the diminution of the intense pain that generally attends them is an object of importance, the patient is not kept very long under its influence, and there is at least no danger that labour may be protracted. Chloroform was, therefore, given in all cases, with one exception, where operations were performed.

The second class were cases of natural labour. Chloroform was not administered as the rule in all such cases. The writer freely admits that he did not adopt, in these instances, the bolder and more decided course taken by Dr Simpson and others. No doubt he may be liable to the charge of unnecessary hesitation and timidity in exercising so much caution, but he wished to avoid any interference with natural labour that was not perfectly justifiable. In the administration of an anodyne that was new, that was powerful, that had been fatal, it was essential to determine how far it could be used without risk to the patient. To relieve pain is certainly a most de-

¹ Misapplication of Chloroform, p. 62—Gream.

² Ibid, p. 67.

³ Employment of Anæsthesia, p. 35—Gream.

sirable object ; the pains of parturition are severe and often agonising ; but if the remedy for those pains be attended with risk, or if the effects that follow its administration are more injurious to the patient than the consequences of the pains themselves, the use of the anæsthetic becomes an unwarrantable interference. With this view the writer restricted chloroform, first, to cases where there was great intensity of suffering—assuming that the risk of interruption to labour, and other ill effects from such agonising pains, was quite as great as any that chloroform could produce when cautiously administered. Finding in these trials that chloroform not only produced no unpleasant consequences, but in some acted most beneficially, he was encouraged to administer it sometimes simply to relieve pain ; and although as yet, for the reasons stated, his experience of it in natural labour is limited, every successive case in which he has used it gives him greater confidence in its value.

CASE I.—*Difficult Labour ; First Child ; Forceps ; Chloroform.*

In July 1848, I was requested by Mr Powell to see with him a case of labour in the Old St Pancras Road. It was the patient's first child ; she had been thirty hours in labour ; the pains were vigorous, but the head made no advance for the last three hours, and there seemed no probability that labour would terminate by the natural efforts. The head presented in the third position, fixed rather low in the pelvis ; there was sufficient room to apply the forceps, and we agreed to deliver her. Some chloroform was sprinkled on a handkerchief and placed before the mouth and nostrils, which soon rendered her unconscious ; respiration becoming slightly stertorous. The forceps were immediately applied, and the position of the head being changed, she was delivered, without much difficulty, of a living child. She continued asleep for a short time afterwards, the uterus contracted, and the placenta was expelled in about ten minutes. This woman was quite unconscious during the operation—the uterus contracted perfectly without the slightest hemorrhage, and she recovered without a single unfavourable symptom. The quantity of chloroform given was not accurately measured.

CASE II.—*Protracted Labour ; First Child ; Forceps ; Chloroform.*

In August 1848, Mr Latty sent for me to see a patient of his, near the Edge-ware Road, who had been twenty-four hours in very severe labour. Like the preceding case, there was no appearance of its coming to a termination, and he wished to decide whether she should be delivered artificially. The head was here also in the third position, and rather tightly fixed in the cavity of the pelvis. We agreed to deliver with the forceps. Chloroform was administered through an inhaler, and the patient was gradually brought under its influence. While the forceps were being applied she seemed partly conscious of their introduction ; she uttered a complaint that vanished in incoherent ramblings. In about twenty minutes she was delivered of a living girl. In five minutes after, the placenta was detached and expelled from the uterus without the least difficulty. When consciousness was quite restored, she declared that she felt no pain, and was quite unaware that she had made any complaint. About three drachms of chloroform were administered in drachm doses, at intervals.

CASE III.—*Tedious Labour : Third Child ; Forceps ; Chloroform.*

I was sent for by one of my pupils to see a patient in Warren Street, who had been in labour the whole of the previous day and night. She was a delicate woman, and seemed very weak. Her pains were feeble, and she was very anxious about herself. The os uteri was quite dilated, and the head in the

cavity of the pelvis, but the pains did little to advance it; and, under all the circumstances, I was unwilling to allow labour to be longer protracted. Having decided, therefore, to deliver with the forceps, she was given chloroform, which she inspired through the inhaler I am in the habit of using. She was rendered insensible and unconscious, and was delivered of a living girl, without much difficulty. The uterus rather doughy after delivery, but, by firm pressure, it contracted strongly, and expelled the placenta without the least hemorrhage. She suffered no pain during the operation, and recovered without a single drawback. She inhaled about four drachms of chloroform in the same manner as the preceding case.

CASE IV.—*Difficult Labour; Head fixed in the Brim of the Pelvis; Forceps; Chloroform.*

I was requested by Mr Wailes, then my obstetric assistant, to see a case of difficult labour in Warren Street. The patient was in labour of her fourth child; the first was born by the natural efforts; the second was delivered by instruments—she did not know of what kind; the third was natural. In this instance the head was fixed in the brim of the pelvis, and remained so for nearly ten hours; the pains throughout were regular and strong, but were evidently inadequate to accomplish their purpose. I determined, therefore, to apply the forceps. She inhaled chloroform in the same manner as the preceding patient, through an inhaler, and was soon rendered unconscious. Having Dr Haigh-ton's forceps beside me, I applied them, but found no small difficulty in locking them, not from any imperfection in the instrument, but because the spaces in the brim that admitted the blades were not parallel, and it was impossible to bring the blades round from these spaces, so as to lock them. After having withdrawn and re-introduced the blades several times, without success, I resolved to use them without locking. Each blade was held separately as nearly as possible in the proper direction, and extracting efforts being thus made, the head was sufficiently advanced to admit of the blades being altered, and then locked. When the head was brought through the brim, there was no further difficulty. The child, a boy, was delivered living, in about ten minutes, although it occupied nearly an hour before any advance through the brim of the pelvis could be obtained. About six drachms of chloroform were inhaled, and although the operation was very troublesome, and, judging from similar operations, I have no doubt would have been extremely painful, she did not suffer in the least. She was much delighted at her delivery—contrasted this with former operations that had been performed on her, in which the child was still-born, and described it as nothing in comparison.

CASE V.—*Difficult Labour; First Child; Forceps; Chloroform.*

Dr Burke, of Montague Street, requested me to see a patient of his who had been in severe labour for upwards of twenty-four hours. It was the lady's first child; her sufferings were very great; her pains were strong, but the head, which was in the cavity of the pelvis, made no advance for about nine hours. The head was in the third position, so low in the pelvis as to prevent its rotation. The pelvis not being sufficiently large to allow it to pass through in this position, it was arrested. It was agreed to deliver her with the forceps. About half a drachm of chloroform was poured upon the sponge of the inhaler, and renewed from time to time. The forceps were readily applied, and as soon as the position of the head was changed, she was delivered without difficulty. The child (a boy) was apparently still-born; the heart, however, was acting, and by the application of cold to the anterior fontanelle and back of the neck, irritation of the thorax, artificial inflation, and the warm bath, the child gradually recovered. About three drachms of chloroform were consumed. The patient was rendered insensible to pain, but not completely unconscious. During the extraction of the child she bore down with her pains, and when her delivery was completed, she was quite conscious of it, and much pleased with the result. This patient recovered without a single unfavourable symptom.

CASE VI.—*Protracted Labour ; Second Child ; Hysteria ; Forceps ; Chloroform.*

A patient on the hospital books, living in Meltou Place, was taken in labour of her second child, August 2, 1849. She was of an hysterical temperament, nervous, and highly excitable. Labour began on the previous day, and continued actively during the night, but the pains altogether ceased towards morning. The os uteri was, however, dilated, and the head entered the cavity of the pelvis in the third position. Thus she lay, watchful and anxious, expecting the return of her pains, of which there did not seem to be the slightest appearance. She had already taken some ergot of rye, which had no effect. I thought it better, therefore, to apply the forceps than to allow her to remain longer in this state. I wished to bring her moderately under the influence of chloroform, but found great difficulty in getting her to inhale it properly ; she was rather excited by it than otherwise, and complained loudly of the least pain in the introduction of the instrument. There was no other difficulty, however, in the operation, and the child (a girl) was delivered living, in about half an hour ; when the head had passed she became more tranquil, and then began singing, " Home, sweet home," remarkably well. She soon, however, woke up, asked where she was, but soon recollected herself. She had a confused recollection of having felt some pain, but she said not much. She had either forgotten the pain she really endured, or that which she was conscious of bore no proportion to her expressions during the operation. About three drachms of chloroform were consumed, but it is quite uncertain what quantity she inhaled ; very little affected her.

CASE VII.—*Very Protracted Labour ; First Child ; Forceps ; Chloroform.*

August 17th, 1847.—I was requested by Mr Scott, of Camden Town, to visit a patient of his in that neighbourhood, who had been in labour from the Tuesday previous (14th instant). It was her first child ; the pains had become quite feeble, and had ceased for some time previous to my seeing her. It was desirable, therefore, to conclude the labour. The head occupied the cavity of the pelvis in the first position, and was rather tightly fixed there—a tumour was formed on the head. The forceps were applied, and she was delivered of a living child in about half an hour. Previous to the operation she was given chloroform. About a drachm was poured on the inhaler. At first, when breathing it, the effect was slight. She lay very quiet, but when the forceps were being applied, she complained of pain. Presently, as chloroform was renewed, it took more effect ; she muttered her complaints to herself, and then rambled. When the head was passing over the perineum, she called out, " My back, my back," and placed her hand over the sacrum ; but when the child was being born, she uttered no complaint, and for a short time afterwards remained asleep. When she awoke she heard the baby cry, evidently with surprise. I therefore asked her if she did not feel pain when she was delivered. She said, " No, I felt none." Then, said I, you certainly expressed suffering ; she repeated, " I did not feel any, nor knew that the child was born."

CASE VIII.—*Difficult Labour ; First Pregnancy ; Twins ; Forceps ; Chloroform ; Failed.*

Dr Tilt requested me to see a patient of his who had been in labour for about twenty hours previously. The pains were short and inefficient, and seemed insufficient to expel the head, which had been resting for some time on the perineum. She had been a good deal excited, as well by her pains as by rather an animated discussion upon chloroform. The lady was most anxious to inhale it, but her husband and friends were equally opposed to its being used. I was called upon to decide. My friend, Dr Tilt, agreed with me in the propriety of delivering by the forceps, so I had no hesitation about employing chloroform. About a drachm was poured upon the inhaler, which she breathed, but without any effect ; while the forceps were being applied, she complained loudly of pain, and

as the child was passing out, she became much excited, but the moment the head passed, she became quite tranquil. As the moderate dose of chloroform did not produce its usual effect, I was unwilling to increase it, as it seemed to cause excitement; it was therefore withdrawn. After the birth of the first child, a second descended, presenting the breech, and was expelled, enveloped in its membranes, by the uterus. Both children were boys. The placenta came away in five minutes after, without any difficulty.

CASE IX.—*Protracted Labour; First Child; Forceps; Dutch Liquid.*

A. B., æt. 36, residing at Salisbury Terrace, Maiden Lane, was taken in labour of her first child. The membranes were ruptured early in the labour, since which time her pains had continued regular and powerful for forty-eight hours. When I saw her the os uteri was fully dilated, the head in the pelvic cavity so tight that I could scarcely feel the ear. I determined to deliver with the forceps, but before doing so requested Dr Snow to aid me in administering the anæsthetic. Dr Snow was desirous of ascertaining the value of the Dutch liquid as a substitute for chloroform, and therefore we agreed to use it. Dr Snow put half a drachm of the Dutch liquid into the inhaler, and the patient began to breathe it. She objected a little at first, on account of the pungency of the vapour, but afterwards inhaled readily, and in about two minutes appeared unconscious, the pupil being turned upwards, and the eyelids firmly closed, and resisting the attempt to open them. I proceeded to apply the forceps; the patient cried out a little, when another half drachm of the Dutch liquid was put into the inhaler, and she became quiet, only muttering and rambling. There was considerable difficulty in extracting the head, which, however, was effected in about half an hour. The child (a boy) was very large, and born alive. As soon as the child was delivered, the patient remained unconscious; the uterus contracted strongly and expelled the placenta. Immediately after, with returning consciousness, she vomited a good deal, and nausea continued for some time afterwards. This patient knew nothing of what had taken place, was greatly astonished to find that all was over, and recovered without a single unfavourable symptom beyond the attack of vomiting immediately after delivery.

CASE X.—*Protracted Labour; First Child; Firm Band connecting Uterus and Vagina: Artificial Os Uteri; Forceps; Dutch Liquid; afterwards Chloroform.*

Mrs —, a patient of Mr Jakins, of Osna burg Street, was taken in labour of her first child, April 23, 1849. Her pains proceeded regularly during the day, and a vaginal examination being made, no os uteri could be felt; the pelvis was of good capacity, and the finger being carried as high as possible, encountered a very firm circular band like the os uteri, excessively tense, and as thick as cartilage; beyond this septum nothing could be felt. Mr Jakins trusted that the labour in its further progress would unravel this anomaly. She was seen again in the evening, but there was no alteration beyond a disposition in the pains to recede. The patient passed a quiet night, and strong pains did not return until about noon the following day.

24th.—Matters were in *statu quo*; the pains were vigorous, but the septum appeared thoroughly to prevent the descent of the head. They again slackened towards evening, and she had only a few during the night.

25th.—The pains returned vigorously about noon, and continued for some hours, but were quite ineffective. Mr Jakins, believing delivery impossible without a division of the septum, requested my assistance. I found the septum described by Mr Jakins in front of, and closely applied to, the head, attached to the anterior wall of the cervix, which was thereby expanded over the head, and passing back in a spiral course towards the posterior wall of the vagina. No os uteri could be felt. When a child the patient had received some injury in the vagina, and it seemed as if an adhesion had taken place between the anterior portion of the cervix uteri and the posterior wall of the vagina,

giving rise to this cartilaginous band, and connecting both in such a manner, that the anterior portion of the cervix could not ascend; the whole efforts of the uterus were directed upon this portion of the cervix, causing its expansion over the head of the child. The os uteri could not be traced in any direction; and, under these circumstances, the only course left us was to make a new os uteri, divide the septum, and deliver her. I again requested the able assistance of my friend, Dr Snow, to render her insensible. He first used the Dutch liquid, and afterwards chloroform. He gives the following account of the effect:—"Half a drachm of the Dutch liquid was put into the inhaler at the commencement; this gradually induced a state of unconsciousness, during which the speculum was introduced; the uterine contractions and expulsive efforts continued as before. A little more Dutch liquid was put into the inhaler from time to time, so as to keep up the state of unconsciousness. The pupils were turned upwards part of the time; there was no excitement or muscular rigidity. About three drachms of the Dutch liquid were consumed, which had kept up insensibility for about an hour, but being exhausted, chloroform was used. There was little appreciable difference between its effects and those of the Dutch liquid, except that they were produced by much less inhalation. In about an hour after the commencement of giving chloroform, the patient was delivered. About half a fluid ounce of chloroform was used." The operation was extremely difficult and embarrassing. The finger was passed up to the most depending part of the presentation, and a scarificator passed along it; with this an incision was made through the cervix, and a director being afterwards passed between it and the head, the opening was enlarged; the septum was then cut through, and sufficient room was thus obtained to apply the forceps. The child being small, was easily extracted. It breathed feebly at birth, but gradually recovered itself. Still, however, it remained weak, crying feebly, like a premature child. After delivery, the uterus contracted strongly, and expelled the placenta. There was not the least hemorrhage. The operation occupied about an hour; but a good deal of time was occupied previously in making a careful examination of the relations of all the parts.

The woman remained asleep for some time after, when we left her in the charge of Mr Jakins. He reports that on the following day she was as comfortable as could be expected. The child, however, died on that day. On the third day the breasts became troublesome, and were relieved by hot fomentations. From this time the patient continued to progress daily, and was, when I last heard of her (July 3d), walking about without any inconvenience.

Before this patient was etherized, she complained very much of the vaginal examinations that were made. I feel satisfied that it would have been extremely difficult, if not impossible, to go through the steps of the operation just related, if she had been fully alive to her sufferings; she could not remain sufficiently quiet to prevent risk. It is also remarkable that the uterus was not the least affected by the chloroform.

CASE XI.—Deformed Woman in Labour of her Second Child; Ovale Distortion of the Pelvis; Conjugate Measurement of Brim $2\frac{1}{2}$ Inches; Perforation; Dutch Liquid; afterwards Chloroform.

A woman, residing in Upper Seymour Street, Euston Square, was taken in labour of her second child, June 11, 1849. She had been delivered of her first by perforation after a very severe and protracted labour, from which she slowly recovered. She was very short in stature, and the lower extremities quite deformed. A vaginal examination being made, the characters of the ovate pelvis were recognised; the cavity and outlet were wide; the sacrum and coccyx strongly curved forwards, and the brim contracted in its antero-posterior measurement to two and a-half inches; the head was above the brim of the pelvis, and the dilatation of the os uteri slight.

June 12.—About two this morning, her pains became regular; and, at four, the

os uteri was dilated. After this, the action of the uterus continued with increased force, powerful pains returning every five minutes until ten o'clock A.M.; the head was found still above the brim, having the funis before it; the pulsations had ceased; the membranes were unbroken. Finding that the child had died, and that the disproportion was too great to admit the head within the pelvis, I determined to perforate, and thus to deliver her. In this case also I requested Dr Snow's assistance, who kindly undertook the management of etherization.

The patient inhaled a little Dutch liquid for the first two minutes, but owing to the limited supply of it, and a fault in the inhaler, she was not rendered quite insensible by it; chloroform was then used, and she was soon rendered first unconscious, then insensible. There were occasional contractions of the uterus and expulsive efforts during the operation; chiefly, at those times when the patient was less under the influence of the chloroform, when inhalation was intermitted. The head was perforated, the brain evacuated, and the crotchet applied. The difficulty of extraction was found to be very great. The crotchet and craniotomy forceps were used alternately, the broken bones of the cranium removed by them, the head itself brought into the brim, but there it remained fixed for some time; at length, after repeated efforts, it began to advance; and when it descended into the cavity of the pelvis, the delivery was soon completed. Some delay, however, was caused by the shoulders. The operation lasted thirty-five minutes, and she was completely under the influence of chloroform for about three quarters of an hour. Six fluid drachms of chloroform were used. After delivery, the uterus contracted strongly, and expelled the placenta in about ten minutes; not the slightest appearance of hemorrhage was observed. When consciousness returned, she expressed great surprise at her delivery; soon after she was seized with vomiting, that continued at intervals through the day.

13th.—She has passed an excellent night; pulse 84; has had no vomiting nor nausea; passes urine freely; there is no tenderness of the abdomen. She only complains of slight after-pains, and some smarting in the vagina. From this date, there was no change in the favourable progress of her recovery.

16th.—She feels so well that she wishes to get up. Of course, this was not permitted, but nothing occurred subsequently worthy of notice.

CASE XII.—*Premature Labour at Seven and a-half Months; Arm presenting; Child turned; Chloroform; Great Constitutional Debility.*

M. P., aged twenty-one, a delicate looking woman, had received a letter from University College Hospital for attendance during her confinement. She had lived in London about five months; before that, she resided in the country. She had been in the enjoyment of every comfort until she was sixteen, when she lost her mother, who died insane in an asylum. Her father also died shortly after. She was thus left an orphan. When eighteen, she married, and since that time had to struggle with poverty. She was twice pregnant previous to her present confinement; and, in both instances, miscarried at the sixth month. She says they were "cross births," and that she never afterwards recovered her strength, which she attributed to the want of the proper diet to which she had been formerly accustomed.

January 12th, 1849.—Her labour pains came on at the seventh month, induced, perhaps, by additional trials. Her husband was too ill to work, which restricted still more their limited resources, and about three weeks previously her sister, whom she closely attended, died of erysipelas. This caused her great mental anxiety and depression; at length irregular uterine pains came on, which lasted for four days, but never amounted to regular labour pains. On the night of the fifteenth, however, one strong pain came on that ruptured the membranes; they then ceased.

January 16th.—Mr Beales, a very intelligent pupil, saw her. He found the os uteri very slightly dilated; there was some hemorrhage, which he arrested, and remained three hours with her. During this time she had no further

hemorrhage, neither had she any pains. Mr Beales then left her for an hour ; and, on his return, learned that she had had another strong pain like the former. A vaginal examination being made, he found the arm presenting, and immediately sent for me.

I never met a case that seemed to be so surrounded with difficulties. The os uteri was very little larger than a shilling, just enough to allow the arm through it ; the vagina was very much contracted ; there was great constitutional debility ; and hemorrhage had only ceased a short time before. Great caution was therefore necessary in the attempt to turn the child. About a drachm of chloroform was poured upon the sponge of the inhaler, and applied to the mouth : in two minutes it took effect. She struggled a little at first to avoid inhalation, and then remained quiet ; she was not quite unconscious, but, very soon after inhalation, the pulse fell from 90 to 80 ; the instrument was consequently withdrawn, and only applied at intervals for a very short time. I proceeded to dilate the vagina, which made her restless, cry out, and mutter incoherently. The vagina yielded much more readily than I had anticipated ; and, in the same manner, the os uteri offered but little opposition to the introduction of the hand, so that, in about ten minutes, the child was turned and delivered. It was still-born, and showed signs of commencing putrefaction. Firm pressure applied over the uterus, soon expelled the placenta. After delivery, cold water was applied to the temples, which soon restored consciousness.

The complete anæsthetic effect of chloroform was not obtained ; in fact, she inspired very little in consequence of the instrument being so soon withdrawn. She was not quite unconscious. She said she felt some pain from the instruments she supposed we were using. She was not aware that she had been rambling, but said she had a most unpleasant dream. She had been muttering and praying incoherently during her delivery.

17th.—She slept but little during the night in consequence of slight uterine pains. Pulse 90, weak ; skin hot. Towards evening, the after-pains were more severe ; urine high-coloured ; pulse 96.

18th.—Had but little sleep ; pulse 112 ; skin dry and hot ; lochia scanty. At five P.M. there was great tenderness over the uterus ; pulse 110, irregular. She was ordered calomel, camphor, and opium, of each a grain every three hours. Late in the evening Mr Beales was hastily sent for, as her friends supposed that she was dying. He found her lying motionless, with numbness and coldness of the extremities ; pulse 90, weak. Her bowels had been moved four times during the day. He immediately sent for me ; and, in the interval, gave her some compound spirit of ammonia—applied warmth to the extremities. She was somewhat recovered when I saw her, and she was given a full dose of tincture of opium in brandy and water.

19th.—She slept well during the night, but talked very much in her sleep, and awoke in a fright (when well she had the habit of talking in her sleep, and occasionally had night-mare) ; pulse 112 ; breasts full and painful.

20th.—She passed a comfortable night, but did not feel so well this morning. In the afternoon she was again becoming incoherent, with dry tongue, and great tenderness on pressure over the abdomen. She was ordered six leeches to each inguinal region. Calomel and opium, a grain each every second hour, and a table-spoonful of the following mixture at the same time.

R Mist. camph. ℥viiss.

Spirits ammon. co. ℥ijj.

Liq. opii. sed. ℥i.—fl. mixt.

At ten o'clock P.M., Mr Beales was again hastily sent for. He found his patient tossing about the bed in convulsions, muttering to herself. She had been purged sixteen times within the last two hours. A mustard-poultice was applied to the back of the neck, and to the soles of the feet, after which she became conscious ; the pills were omitted ; the mixture continued, and to have sago, with brandy.

21st.—She had a quiet night, but during the day, was purged sixteen times—accompanied with great prostration. She would take nothing, wishing, as she said, “To die undisturbed.” A starch enema was given her, and, by the careful administration of stimulants, she gradually recovered.

From this date she slowly improved; the diarrhoea was checked by astringents; and by means of stimulants, and proper nourishment, which was then charitably afforded her, she completely recovered.

This case is given more at length because of the unfavourable symptoms that afterwards presented themselves, and as it seems to illustrate a class of cases that the writer believes is not uncommon in this vast metropolis, where the extreme of wealth, of comforts, and of enjoyment, meets the extreme of poverty, privation, and despondency. A single daily meal of toast and tea (bread and water) is perhaps, as in this instance, the only diet; but a much more powerful cause of depression even than this is the intense mental anguish caused, not only by the deprivation of the comforts to which they had been accustomed, but by the chilling influence of indifference to their wants and the prospect of the workhouse. The writer has seen destitution—Irish destitution—but never yet has he witnessed more painful instances of wretchedness than in this, what might be called “London destitution.” The effect of chloroform is also worthy of attention. This patient inhaled a very small quantity, scarcely sufficient, in an ordinary case, to diminish pain, yet here it seemed to influence the action of the heart; its pulsations fell from 90 to 80. Pain was not quite removed, but greatly lessened, by it, and the shock of the operation, which otherwise would have been great—perhaps fatal—was altogether removed. Chloroform seemed also to induce a more ready relaxation of the vagina and os uteri. Great caution was required in its administration; but, without it, the writer feels assured that the chances of a successful issue would have been greatly diminished, if not altogether dissipated; the patient’s recovery, no doubt, was protracted, but, nevertheless, it was complete.

CASE XIII.—*Shoulder Presentation; Second Child; Chloroform.*

M. H. having a letter from University College Hospital, was taken in labour of her second child on the evening of August 31, 1849. She slept at intervals during the night, and, on the following morning, the pains became more regular and frequent; the membranes were ruptured in the middle of the day, soon after Mr Humble saw her. He remained with her for some time, and having made an examination, found the arm presenting. He immediately came for me. I returned with him, and found the right elbow protruded through the os uteri, which was dilated to about the size of a crown; the arm was a good deal swollen. The woman was very much taken by surprise when she was informed that it was necessary to deliver her. Her first labour was severe and protracted, but she was delivered by the natural efforts; she thought that this must be similar, and that time would do everything. She was of a violent and impetuous temper, and complained loudly when a vaginal examination was made. No persuasion, therefore, would induce her to submit to what was necessary for her relief; she became quite violent, and would suffer nothing to be done. At length, when she found that I was about to leave her, she consented to inhale a little chloroform, “just to taste it.” About a drachm and a-half was poured on the inhaler, and applied to her mouth; it had no effect. I then sprinkled about two drachms on a handkerchief, and placed it before her mouth and nose. She tossed her head about to avoid it, but still it took some effect, as she was quieter, although still quite conscious. The inhaler was then resumed, and she breathed it better, so that at length her breathing became slower and deeper, approaching to stertor. I then withdrew the inhaler, and proceeded to deliver her, requesting Mr Humble to apply it to her mouth only at intervals. The left hand was passed readily through the vagina, and the arm brought down; there was some difficulty in dilating the os uteri, but as the hand entered the cavity of the uterus, it met with great resistance, the uterus being so

strongly contracted about the body of the child ; the knee was seized, but no reasonable effort could move it ; the leg and foot were brought down as far as they would go ; and a loop of tape, being slipped over the arm, was pushed up to and over the foot. The hand was then withdrawn ; and being very much fatigued, I was obliged to rest. After a few minutes I again introduced the left hand, and succeeded in pushing back the protruding arm. Having twisted the tape in my right hand, I seized the foot with two fingers of that hand, and brought it down gradually to the vulva. The left hand, guided by this leg, was passed to the breech, and being hooked in the fold of the groin, brought it down, but still with difficulty ; the child being turned, the body and remaining arm were more easily extracted. The head was tightly grasped by the cervix uteri, and very difficult to remove ; at length the child was delivered still-born.

It was very difficult to bring this patient under the influence of chloroform ; more than an ounce was used, in drachm and two drachm doses ; a good deal was wasted on the handkerchief. She was partly conscious almost to the last ; she rambled a good deal ; at length quite suddenly lay quiet, no more chloroform was given her, what she had taken having produced a sufficient effect. She did not move nor offer any resistance during the whole of the operation, which occupied rather more than an hour. She remained asleep for about a quarter of an hour after she was delivered ; and when she awoke, she was not conscious of what had been done. She said that "she felt nothing ;" she was much surprised to hear that her child was born, but equally disappointed to learn that it was dead. The most remarkable feature in the case was the powerful resistance of the uterus, which presented as much opposition to the operation as if no chloroform had been used. In this, as well as in other points, it forms a remarkable contrast to the preceding case.

In ten of these operations, chloroform alone was used. In two (Cases X., XI.), the Dutch liquid first, and then chloroform ; in one (Case IX.), the Dutch liquid alone ; the effect of both were similar, only that the Dutch liquid was slower in its operation, and the latter was followed by vomiting in two instances. The quantity of chloroform administered varied. In one case (XII.), a drachm was consumed ; in another (Case XIII.), an ounce. Its effect also varied. When the patient was fully under its influence, she was perfectly quiet, breathed deeply and slowly, and gave no expression of any kind ; more usually, the effect was not so complete. Consciousness merged into incoherency ; when not disturbed, the patient lay as if asleep, but when excited by the operation, she muttered complaints, and sometimes cried out distinctly, as she would have done if she had not taken chloroform. Yet, after the operation, when she regained her self-possession, she recollected nothing about these exclamations, and said she felt no pain. The tonic contractile power of the uterus was not impaired in a single instance. In all, the placenta was separated by the contractions of the uterus alone. In none was there the slightest appearance of hemorrhage. Ten of the children were born living ; one was putrid ; one was extracted by the crotchet ; and one delivered still-born by turning in a case of unusual difficulty. Chloroform (although given in its full dose) did not, in any manner, affect the infant. The subsequent recovery of these patients appears to the writer to be by far the most important advantage from the use of anæsthesia. In some of these cases, the

operations were extremely difficult, and calculated to cause, at least, a protracted recovery. Nevertheless, not a single unfavourable symptom presented itself, after delivery, in any of the cases but one (Case XII.), which had no reference to chloroform; and in all, with this exception, the recovery was rapid.

CHLOROFORM IN NATURAL LABOUR.

The next class of cases to which the writer directed his attention in observing the effects of chloroform, were cases of natural labour. In these instances chloroform was given very moderately, and in the majority of them only when the intensity of suffering became so great as to overcome the patient. The mode of its administration was by applying the inhaler that the writer is in the habit of using, to the mouth alone; the sponge generally contained a drachm of chloroform. When the patient felt her breathing affected, the inhaler was withdrawn, and re-applied as soon as she became accustomed to the vapour, and inhaled quietly; the nostrils were sometimes closed to increase its effect. When the pain ceased, the inhaler was taken away, and again applied when it returned. Occasionally, when the patient was much under its influence, two or three pains were suffered to proceed without chloroform, which was not given until they again became intolerable.

CASE I.—*Natural Labour; Second Child.*

In June 1848, a lady, whom I had attended before, was taken in labour of her second child. The previous night she suffered very much from her pains; they continued active the whole morning, and when I arrived the os uteri was nearly dilated, and the head presenting. At first I did not contemplate using any chloroform. Labour was allowed to proceed of its own accord; however, in the second stage, the pains were becoming so severe, that I thought myself justified in endeavouring to relieve their intensity. After a few inhalations, she experienced decided relief, and was perfectly conscious of the difference it made in the severity of her pains. My patient was willing to inhale as much as I would permit her to use, and asked for the inhaler the moment that she felt a pain. Not wishing, however, to bring her too much under the influence of chloroform, lest it might interfere with the action of the uterus, I did not always consent; the pains were sometimes allowed to return to their full intensity before it was renewed. The second stage was completed in four hours, about half of which time she was moderately under the influence of chloroform. In the last half-hour, during the expulsion of the head, she inhaled it more freely. She was conscious at the time of her delivery, but felt no pain. The placenta was expelled in five minutes after her delivery. Her recovery was uninterrupted.

CASE II.—*Natural Labour; First Child.*

A lady, in excellent health, and of rather robust conformation, was taken in labour of her first child, August 2, 1848. Her pains began after dinner, at first slowly, but soon increased in frequency and severity. In the middle of the night she sent for me. The os uteri was then dilated to about the size of half-a-crown, its margin thin and dilatable, the membranes entire, and the head presenting. There was nothing to call for interference in any way, so labour was suffered to proceed without interruption. The severity of her pains increasing, she became very boisterous, so much so that sometimes her pains were cut short, just as they commenced. Under these circumstances, I wished to try

the effect of chloroform ; she willingly inhaled it, and felt so much relief that I could hardly get the inhaler from her hand. Not wishing, however, that she should inhale more than I pleased, I did not renew the chloroform, but left the inhaler with her as long as she amused herself with the belief that it was doing her good. However, she was soon undeceived by the increasing intensity of her sufferings, and earnestly entreated for more chloroform; more was added, but only on condition that I should have the inhaler in my own hands, to which she consented. At the commencement of every pain she inspired a small quantity of chloroform, which, without removing, always rendered the pain less acute and more tolerable. Sometimes chloroform was omitted for two or three pains, and renewed again. Thus, at the end of about ten hours from the time that chloroform was first administered, she was delivered of a living boy. The placenta was expelled in about ten minutes. Six drachms of chloroform were consumed. The lady rapidly recovered.

CASE III.—*Natural Labour ; First Child ; Chloroform.*

In the beginning of February 1849, a lady was taken in labour of her first child. She had passed a very restless night, and towards morning regular labour pains set in. I saw her about noon, she was suffering from short cutting grinding pains, which she was quite able to bear. These pains continued more or less during the day, and towards evening, as the dilatation of the uterus approached completion, they became more severe and frequent. As yet I did not interfere. The lady possessed great fortitude, and although suffering very much, had sufficient resolution to command her feelings. However, as night arrived, the pains were becoming perfectly intolerable—she was beginning to lose all command of herself ; and then, for the first time, I proposed to administer chloroform. Her husband (a medical man) was quite willing that I should do so ; but her next relative, who was already a little imbued with anti-chloroform prejudices, demurred. A consultation was held in the next apartment, and it was agreed that I should be left to my own discretion. Labour had advanced so far that the head was beginning to descend upon the perineum. I proceeded to administer chloroform in the same manner as in the former cases. My patient experienced immediate relief. She still felt her pains, but thought nothing of them. In about two hours from the time chloroform was first inhaled, she was delivered of a living girl. The placenta was expelled in five minutes. About four drachms of chloroform were consumed.

This lady progressed very favourably until the fifth day, when inflammation of the mammæ set in, which ended in suppuration ; her recovery was consequently retarded ; but, with this exception, nothing took place to cause uneasiness.

CASE IV.—*Natural Labour ; First Child ; Hysteria ; Chloroform.*

I was requested by a medical gentleman to attend his daughter in her first confinement. Before marriage, she suffered a good deal from hysterical symptoms, headache, pains in the back and mammæ, with some irregularity of the catamenia. Since marriage, her health improved ; but with pregnancy her former symptoms were slightly renewed. On the night of November 2, 1848, she was taken in labour, and I was sent for the following morning. The labour was in its first stage; the pains frequent and rather severe, but still not beyond what she could reasonably endure ; matters were suffered to proceed without any interference. About noon, however, the powerful bearing pains of the second stage were increasing in their severity, and, as in former cases, I found the patient beginning to lose all control of herself ; the pains themselves, also, were interrupted, and becoming irregular. Chloroform was therefore administered ; but this lady did not experience the same relief as in the cases related : she seemed to suffer as much pain as before ; and the intervals between the pains were increased in length. I was unwilling to increase the dose of chloroform, lest it might paralyse the uterus—consequently no more was given her. Labour went on, her pains increasing sometimes to agony.

She was delivered about three o'clock P.M. of a living boy. The placenta was expelled in about a quarter of an hour. This lady recovered in the usual time.

CASE V.—*Natural Labour; First Child; Chloroform.*

A lady, who was rather slightly made, but healthy, requested my attendance on her in her first confinement. She was most anxious that chloroform should be given to her. My patient and her husband were fond of literature, and read even ephemeral productions with avidity. Chloroform did not, therefore, escape their notice; and they fondly hoped that the anticipated labour would be only "balmy sleep," from which the cries of the child were to awake her. I was very anxious to remove this impression, but was not very successful. The premonitory pains of labour came on, November 27, about two o'clock P.M. I saw her at seven in the evening, very cheerful, in anticipation of soon becoming a mother. Slight pains returned at lengthened intervals, which she was quite willing to endure without chloroform. However, as midnight approached, they increased so much in intensity that I could withhold it no longer. Chloroform was administered in the same manner as in the former cases, and with evident relief; the pains were subdued, but not removed. My patient still continued to cry, and bear down with her pains, which (as I afterwards learned) very much surprised her husband, who was present in the room, and not at all prepared for such a result. Labour, however, proceeded very favourably to its conclusion; and she was delivered of a girl at about three in the morning. Chloroform was used for three hours, and about six drachms consumed.

This lady's recovery was most favourable, and she suffered considerably less than she would have done without chloroform; but this was not appreciated by the lady or her husband. Both made up their minds that chloroform was to remove all pain, and, therefore, when pain was still felt, it caused great disappointment. Had I given the full dose, their expectations would have been realised; but, as it was, chloroform lost all its credit, and was clearly proved, in their minds, of no use.

This case, also, may explain the source of some objections that are freely circulated against chloroform,—“That there are but few women who at the present time really undergo the process of etherisation during labour, who are really made insensible to any part of their sufferings: a little management and persuasion will make them imagine they are, and the comparative differences in the character of their deliveries will still further induce them to think so.”¹

CASE VI.—*Natural Labour; First Child; Chloroform.*

A Russian lady, whom I was engaged to attend, sent for me, June 18, 1849. I saw her about three o'clock in the morning, and learned that her pains began the previous evening, and that she suffered severely during the night. I found labour so far advanced that the dilatation of the uterus was nearly completed, and the head entering the cavity of the pelvis. She was very intolerant of her pains, and gave the most agonising expression to her distress. I at once gave her chloroform, and a total change took place; the pains were quieted, and she was much calmer. Previously she cried out bitterly while the pain lasted, and in the interval was still restless, watchful, and complaining: now she bore down with them quietly, and when they ceased fell off in a dose. She was again roused by the pains to a renewal of straining effort, and again slept. The pains came on at intervals of ten minutes, and in about two hours after my arrival she was delivered of a living boy. The placenta was separated and expelled in ten minutes after. About four drachms of chloroform were used. The dose was rather more than I generally administer in these cases. It produced sleep that was only interrupted by the action of the uterus. This lady stated that she felt no pain from the time chloroform was given; the straining efforts seemed to be involuntary, at least she felt no pain then, although she bore down with a deep groaning expiration.

¹ Gream—Misapplication of Anæsthesia, p. 18.

CASE VII.—*Natural Labour; Third Child; Chloroform.*

A lady, who had previously resided in the country, came up to London, pregnant of her third child. She had heard very contradictory opinions about chloroform, but was resolved to use it, if I thought it right. Labour commenced May 5, 1849, in the afternoon, severe pains coming on at intervals of about fifteen minutes. In the evening they were more frequent and prolonged, and towards night assumed the character of bearing pains; the os uteri was about one-half dilated. Her pains were rapidly increasing in their severity; and although my patient possessed great fortitude, and could well command her feelings, she could not patiently endure these pains. I then gave her chloroform. She experienced immediate relief, and was quite conscious of the difference it made: the pains were not removed, but were muffled by the chloroform. At first I thought that the action of uterus was influenced by it, because the intervals of the pains were lengthened; but this was soon proved to be only a temporary effect. The os uteri was soon completely dilated, and she was delivered of a fine boy within two hours from the time she inhaled chloroform. During the last expulsive pains the full effect of chloroform was induced: she lay asleep while the child was being born, and did not awake for five minutes after her delivery. The placenta was expelled within that time. She recovered more rapidly than after her former labours. About three drachms of chloroform were used.

CASE VIII.—*Natural Labour; First Child; Chloroform.*

A lady, whom I was engaged to attend, was taken in labour of her first child, September 3, 1849. Her pains did not become active until night, during the whole of which she was kept awake by sharp grinding pains. She bore them, however, with great fortitude, and made little complaint. Towards morning they increased considerably in severity; and having made an examination about seven o'clock A.M., I found the os uteri more than half dilated, the membranes entire, the cervix, rather rigid, but quite free from tenderness. Labour was suffered to proceed for some time longer, without interference. Strong pains returned every three minutes, becoming more and more severe. At eight o'clock I commenced to use chloroform. The intensity of suffering was immediately diminished, she experienced great relief, the intervals between the pains were lengthened to five and to ten minutes—that interval was spent in the most perfect repose, and freedom from the aching that previously occupied it. Although the intervals were thus increased, nevertheless the dilatation of the uterus advanced much more rapidly than I expected; it was completed about nine o'clock, and soon after the head descended to the perineum. As the head passed, the patient groaned with the pain; when it ceased, she slept until the next pain woke her up. When the head was passing the vulva, she seemed to a certain extent unconscious. The consciousness was that of a sleeping person, who will change their position, and avoid what may render them uncomfortable, without having the least recollection that they had done so. Thus my patient bore down and groaned with her pain, but the moment it ceased, slept. The head remained on the vulva about ten minutes, and then passed out with the same groan, but without any of the usual expressions of agony. The moment the head was born, she remained asleep, which was not disturbed by the passage of the body and limbs of the child. The uterus contracted perfectly after the birth of the child, and expelled the placenta in about five minutes. In ten minutes after the child was born she awoke, and heard it cry. She was not conscious of its birth.

The child was born a few minutes before ten o'clock A.M. When the first vaginal examination was made, about three hours before, I did not expect that labour would be concluded until the afternoon; the cervix and os uteri presented the character that I know requires a considerable time before it is completely dilated. I was, therefore, very agreeably surprised to find the dilatation advance rapidly after the patient inhaled chloroform—it was completed in less than an hour; and in another hour the child passed through, and was expelled from the pelvis. Four drachms of chloroform were used.

Summary of Cases.

No.	Nature of Labour.	Chloroform.			Effect.	Results to		Special effects.
		Quantity.	Time.			Mother.	Child.	
1	Forceps case.	uncertain.	30 minutes.		full.	well.	living.	Unconscious; no effect on uterus.
2	...	3 drachms.	25 ...		...	...	...	Unconscious; rambled; no effect on uterus.
3	...	4 ...	20 ...		...	...	...	Ditto; uterus doughy after delivery; placenta expelled; no hemorrhage.
4	Long forceps.	6 ...	1 hour, 10 m.		...	...	...	Unconscious; no effect on uterus.
5	Forceps.	3 ...	20 minutes.		moderate.	...	...	Not quite conscious; no effect on uterus; child, apparently still-born, recovered.
	...	3 ...	30 ...		full.	...	...	Hysterical; cried out with the pains, but recollected nothing about it; no effect on uterus.
7	...	uncertain.	30 ...		...	...	...	Unconscious; rambling; cried out with the pains—said "she felt none;" no effect on uterus.
8	...	1 drachm.	15 ...		none.	...	...	Twins; chloroform excited the pat., and was withdrawn.
9	Forceps.	Dutch liquid, 3ij	30 ...		full.	...	...	Unconscious; no effect on uterus; had vomiting after.
10	Artific. osut.	Dutch liq. 3ij.	} 2 hours.		...	...	born liv.	Perfect unconsciousness; no effect on uterus; child died next day.
11	Perforation	Dutch liq. 3ss.			...	...	dead	Unconscious; slight effect on uterus; vomiting.
		chloroform, 3ij.	} 45 minutes.			...	...
12	Arm presen.	1 drachm.	20 minutes.		imperfect.	...	dead	Child putrid; rambling; slow recovery, from great previous debility.
13	Elbow presen.	8 drachms.	1 hour.		full.	...	...	Very slow in effect; unconscious; ut. strongly contracted.
1	Natural.	3 ...	4 hours.		slight.	...	living	Conscious of pain, but tolerable.
2	...	6 ...	10 ...		...	...	...	Ditto.
3	...	4 ...	2 ...		...	...	...	Ditto.
4	...	2 ...	1 ...		none.	...	...	Hysterical; chloroform withdrawn.
5	...	6 ...	3 ...		slight.	...	...	Conscious of pain; relieved.
6	...	4 ...	2 ...		rather full.	...	...	Conscious; felt no pain.
7	...	3 ...	2 ...		...	...	...	Conscious; but asleep when child was born.
8	...	...	2 ...		...	...	...	Conscious, but not of the child's birth; intervals of pains lengthened.

In all these cases of natural labour, the patients were conscious; they slept in the intervals between the pains, and were only disturbed by their return. In the two last cases they continued to sleep, or I should rather say to be unconscious, while the child was being born. They groaned, and seemed to aid the expulsive effort; but gave no expression of suffering, and did not know when the child was born. In every instance, the uterus contracted after delivery with its usual power, and expelled the placenta. The subsequent recovery of each patient was rapid, and remarkably free from all those after-pains and restlessness that is so often observed after delivery. In one case alone mammary abscess occurred on the fifth day; but there was quite sufficient cause for its appearance, without the aid of chloroform.

The cases that have been detailed, although not very numerous, are, the writer trusts, sufficient to enable him to form a reasonably fair estimate of the value of anæsthetic agents in the practice of midwifery, and to arrive at some judgment on the *vexata questio*, that is at present distracting the profession. Resting his opinions upon direct personal experience of the effects of chloroform, he has sought, as far as possible, to correct them by the experience of others. Wherever that experience has been faithfully detailed, he has availed himself of it, and he would add, has as carefully shunned all statements or assertions not supported by well-authenticated facts.

Whether anæsthesia should be employed at all in midwifery or not, may be a question of *a priori* discussion to be decided by *a priori* arguments. The writer will not here discuss the propriety of relieving the pains of labour, believing it to be the physician's duty to relieve pain and suffering whenever he can safely do so. But questions that concern the value of chloroform for that purpose—Whether it be safe or dangerous to use? whether it contribute to the patient's recovery, or is followed by results detrimental to her health? how it operates on the constitution of the patient?—All these questions, which are to be decided by observation, require facts for their solution, and whether positive statements are confidently made, or ominous hints are cautiously whispered that have no support from facts brought forward, the writer feels it his duty to pass them by as unworthy of attention. There is no medium in the use of chloroform in obstetric practice. It is either a blessing or a curse;—it is either a consolation to soothe the sufferings of the parturient woman in the hour of her severest trial, or it is an insidious and dangerous agent that should be at once prohibited. The question is too important to admit of being mystified by eager praises, or by clamorous anathemas. We wish to know the truth, and truth can only be known by facts honestly stated. The cases that have been brought forward illustrate the general effects of chloroform in parturition, and will afford some reply to the queries that have been proposed.

Does chloroform paralyse the uterus? Does it deprive it of its tonic contractile power? The writer's experience is in the negative. It did not do so in a single one of the cases he has recorded. In one case of natural labour (Case VIII.), the intervals between the pains were increased, but action of the uterus was more efficient than when they were more frequent. In another (Case IV.), the same happened, and labour seemed to be retarded; but the moment that chloroform was withdrawn, the pains returned with more force and effect than before it was used. If such be paralysis, its effect was quite evanescent; the uterus not only regained its power immediately, but the power seemed to be increased. The patient was hysterical—had some apprehension of chloroform from what she had heard; and it is at least doubtful whether the action of the uterus was controlled by mental causes, or by an irregularity in the action of the agent.

Those cases that required operations afforded stronger evidence, because it was necessary to soporise the patient more completely; the dose of chloroform was more powerful and more likely to affect organic muscular fibre, yet even here it did not do so. In the case of perforation (Case XI.), the patient was as completely under the influence of chloroform as in a surgical operation; she was perfectly still, without sensation or motion, yet the uterus made several expulsive efforts during the operation; and, after delivery, it contracted perfectly and expelled the placenta. In the case of artificial os uteri (Case X.), the patient was ætherised to the same degree, and the uterus contracted equally well. In Case XII., of arm-presentation, the tonic power of the uterus evidently was feeble: the patient had no regular labour. She had altogether only two or three strong pains at very long intervals; the action of the uterus then ceased; there was some hemorrhage also before her delivery; a very moderate dose of chloroform produced a powerful effect: it lowered the rate of the heart's action; turning was performed, while she was under its influence; and, after her delivery, the uterus contracted with sufficient power to expel the placenta without the least hemorrhage. If chloroform paralyse the uterus, it ought certainly to have done so here. The next case (XIII.) of elbow-presentation, is a striking contrast to the preceding one. This patient was strong and healthy; the former was weak and debilitated. In the present case, a good deal of chloroform was inhaled before any effect was produced; but when it did act, its effect was complete. The writer was obliged to perform one of the most difficult operations of turning he ever recollects to have undertaken; the patient did not mutter a groan; and when, after delivery, consciousness returned, she knew nothing and felt nothing of what had just been done to her. Yet although chloroform so completely narcotised the patient, the chief difficulty of the operation was the powerful resistance of the uterus: it was strongly contracted about the body of the child, and did not

relax in the slightest degree. This case is certainly an exception to cases generally of turning under chloroform; but as an exception, it is well worthy of attention, because it proves, in a strong and healthy patient, how perfectly independent the uterus may be of anæsthetic influence. In all the remaining forceps cases, the action of the uterus was in no way interfered with. The conclusion, therefore, that is derived from these cases, taken collectively, contradicts the statement that chloroform paralyses the uterus. In the examination of this question, however, the experience of other observers must be taken into consideration; and, with this view, the writer confines himself to those alone who have advanced carefully observed facts. In an inquiry of this nature, loose assertions and imperfectly related cases are worse than useless, because they are only calculated to make facts appear much more contradictory than they really are, and to confuse rather than convince the patient inquirer after truth. Dr Denham¹ gives a very interesting report of fifty-six cases of labour, with whom chloroform had been used, in the Dublin Lying-in Hospital. Forty-four of these were cases of preternatural, instrumental, or complicated labours; twelve were natural labours. In the latter class, chloroform was used for a longer time, and its effect on the action of the uterus was more easily observed. The degree of etherisation is not precisely stated. In the majority of these cases, the intervals between the pains were increased, and the pains are described as "weaker" after chloroform than before; nevertheless the action of the uterus went on, and the labour was soon happily concluded. In some, the pains returned with frequency and force, the patient being still under the influence of chloroform. In others, the same effect took place immediately after chloroform was withdrawn. One patient (Case X.) "was put under the influence of chloroform, but the pains soon became weak, and at the end of an hour *ceased entirely*; the chloroform was now left off, soon after which the pains increased to such a degree, that *we began to dread rupture of the uterus*, especially as one of her former labours had been instrumental. She was therefore again put under the influence of chloroform, when the pains subsided, and she was safely delivered by the forceps; child living, no hemorrhage; recovery good." In another case (Case XI.), "the pains gradually diminished, and at the end of two hours *had almost entirely ceased*. The chloroform was now discontinued, when the pains again *returned with considerable force*, and the child was born in half an hour from the time she ceased to be under the influence of it." A third case (Case XII.) occurred in the practice of Dr Shekleton, the present master of the Dublin Lying-in Hospital, and is sufficiently remarkable to quote more at length. "A lady, pregnant of her first child, had been in the hands of an ignorant midwife for twenty-four hours." Dr S.

¹ Dublin Journal for August, p. 107.

was sent for.—“On going up the avenue leading to the house (he says), I distinctly heard the lady’s screams, and fancied she was on the eve of getting well. On examination, however, I found it was a face case, the chin partly protruded, and looking towards the pubis; the features of the child were so swollen and distorted by the rude fingering of the midwife, that, except for the chin, they could not be recognised; the vagina was hot and tender from the same cause; and the perinæum hard and rigid, partly owing to the advanced age of the lady, and to her habit, perhaps, of hunting regularly during the season. The pains were powerful, and evidently advancing the labour, though slowly. Instrumental assistance, from the state of the parts, was out of the question, and I determined to try the effect of chloroform to mitigate, if possible, her agonising screams, which accompanied every pain. She was speedily put under its influence, talked at first of hounds and horses, and laughed immoderately; and it decidedly put an end to her expressions of agony, but *the labour pains nearly ceased*, and for two hours and a half, that I kept her in a state of anæsthesia, *the child never advanced*. I therefore finally abandoned it altogether; and with the happiest results, for *the pains speedily resumed their efficacy; the screaming never returned*; and the child was born alive in three hours from the time the chloroform was relinquished.”¹ These three last cases are quoted by Dr Denham to show where chloroform, “if persevered in, may be positively injurious” in suspending labour. In the nine cases previous to these, it was highly beneficial; and although, in some cases, the intervals of the pains were lengthened, and the pains *seemed* weaker, labour was rather hastened than otherwise. The writer hesitates to believe that even these three cases prove that chloroform was injurious; the action of the uterus was certainly suspended while the patient was under its full influence, but so far was the uterus from being paralysed, or its power impaired, that it returned with increased force the moment that chloroform was withdrawn, and in the last case evidently with considerable advantage; the “pains speedily resumed their efficacy; the screaming never returned.” If these instances, where the intervals between the pains are lengthened—where they seem weaker, or are suspended—be considered proofs that the uterus is paralysed, there is certainly no danger whatever in the paralysis; it is but momentary, and disappears with the cause producing it. Such an effect, consequently, cannot be advanced as an objection, in the sense in which it is offered. The objection is meant to imply much more than a mere suspension of labour: it signifies a diminution of that contractile energy of the uterus upon which the safety of the mother depends—that loss of tone which results in hemorrhage, in retentions of the placenta, and other ill effects, such as we observe after a very protracted labour, or in very

¹ Dublin Journal for August, pp. 116–118.

feeble habits. If chloroform brought the uterus into the state that we find it when it is exhausted, relaxed, difficult to excite its contractions after delivery, requiring the aid of our best directed skill to prevent hemorrhage taking place—if such were its effects, there could not be a more dangerous instrument of mischief, or one that should be more strongly condemned; but no such effect is proved to be the result of its action. The writer has carefully looked for it in every case that came under his notice, and did not find a single instance where the uterus lost its contractile power. In the whole of the fifty-six cases reported by Dr Denham, there is not one that gives evidence of such an effect. He quotes two cases where hemorrhage occurred. In one case (XIII.) of natural labour, in which the pains had nearly ceased after the administration of chloroform, it was discontinued. “Soon after this, they again returned, and the child was born in two hours; the placenta soon came away; but, *at the end of six hours*, there was some hemorrhage, but *not to any extent*.”¹ The other case (XLV.) was one of twins; “*labour tedious, from inertia*, the result of over-distention of the uterus. . . After being twenty hours ill, she was delivered of both children, while in a state of anæsthesia. An interval of an hour was allowed to elapse between the birth of the first and second child, during which she became conscious, but without a return of uterine action sufficient to expel the second child. She had a smart attack of hemorrhage after the placenta came away; her recovery, however, was good, and she went home well on the ninth day.”² No just reasoner would attribute the hemorrhage that occurred in either of these cases to chloroform; and, consequently, if this be admitted, the facts brought forward by Dr Denham prove, that, although chloroform may “interfere with the activity of uterine contractions,” may “interrupt or suspend the expulsive and contractile power of the organ,” it does not *impair* its energy, nor produce that loss of tone which is followed by such dangerous consequences. Why chloroform sometimes suspends the action of the uterus, is a different question, and one that is full of interest; but, in our examination of it, we must not confound suspension of power with loss of power.

Dr Channing, who is a warm advocate for etherisation, gives, with his opinions, the whole of his facts. He details 78 cases of labour that had been delivered under the influence, either of ether or chloroform; 43 of these were cases of natural labour; 29 inhaled ether; 14, chloroform. There is only one instance (Case IX.) of suspension of pains where ether was administered, and none where chloroform was given; on the contrary, the action of the uterus, in place of being diminished, was generally increased—in some instances, remarkably so. In case XLIII., “the pains were of great severity; the os uteri dilated to the size of a dollar; chloroform was inhaled

¹ Dublin Journal for August, p. 118.

² Ibid., p. 130.

imperfectly at first; no effect was observed; at length she inhaled freely, and became calm; there was no effect whatever observed from chloroform, but quiet. . . With regard to the progress of the labour, the facts were of great interest: *the pains rapidly increased*; the show, which at first was very small indeed, became abundant, and of the true character; the os uteri rapidly dilated; the waters came away; and the child was born alive twenty-five minutes past three o'clock, about an hour and twenty minutes after the first use of chloroform."¹ In the next case (XLIV.), chloroform was given in the second stage of labour; "a sound sleep, accompanied with loud and deep snoring, occupied the intervals of the pains; and the pains were not at all noticed by the patient. *I note this especially, because of the rapidly increased force of the contractions, while under the fullest effect of chloroform.*" In case XLV., "the womb acted with increasing energy in every succeeding contraction"² after chloroform had taken its effect. In case LVIII., "at times unconsciousness and insensibility were complete, and it was during these *that the uterine action was strongest and most efficacious.*"³ Dr Channing relates five cases where hemorrhage occurred. In the first (Case XVIII.), it took place *before* chloroform was administered; none occurred afterwards. In the second (Case XXXVII.), it happened *an hour after delivery*, not externally, but into the cavity of the uterus. In the third (Case LXVII.), the patient *had hemorrhage in her previous labours* after the birth of her child; the same happened in this, the placenta was adherent and obliged to be removed; but there was no difficulty in securing a perfect contraction of the uterus; the womb was in fact already contracted upon the placenta, closely adapting itself to the inequalities it presented. The fourth case inhaled sulphuric ether; the child *and placenta were safely delivered*, but soon after she looked pale, and felt faint; on examination, the womb was found very large, and filled with firm coagula. Dr C. at once emptied it of the coagula; "*it contracted promptly and firmly,*" and no further hemorrhage took place. In the fifth case, the patient, who was in labour of her fourth child, inhaled about two drachms of chloroform in half-drachm doses. "During the whole time there was no loss of consciousness, and only just so much insensibility as to render labour comfortable;" the walls of the abdomen were unusually thick, very pendulous, and so loose and uncontractile, that Dr Channing could fold them very easily over each other; the uterus, however, *contracted firmly, and expelled the placenta*, but hemorrhage soon took place; and the loss in a short time was very great. By careful management the patient recovered. Upon this case, Dr Channing further remarks, "A year ago or more this woman had been seized in the unimpregnated state with severe

¹ Etherisation in Child-birth (Channing), p. 233.

² Op. cit., p. 234.

³ Ibid., p. 256.

uterine hemorrhage, and grave inflammation of the uterus. Then, again, some time before labour, she complained of a singular sense of sinking in the præcordia which led to strong demands for air and fanning; there was thus a *hemorrhagic tendency present*, and she had eaten a hearty breakfast of meat and potatoes while labour was present.”¹

These are the whole of Dr Channing's cases of hemorrhage, and in none of them is there any clear evidence that the cause of hemorrhage was paralysis of the uterus, the result of etherisation. Further testimony upon this, as upon other points, is supplied by Dr Channing's correspondents. Dr C. sent round a circular containing eleven queries on several important points in connection with the use of ether or ehloroform,—among these the 7th was—“Special effects, *physical*, moral, or intellectual? 8th. *Apparent danger*, and how manifested? 9th. *Results to mother and child*, both immediately after delivery and later?” Forty-five medical gentlemen replied, quoting, collectively, 471 cases of labour. Some allude, and in particular Dr C. Ware, to the special effect of etherisation in “diminishing the force of the pains, and retarding the labour;” but not one makes the slightest allusion to any apparent danger, and all report most favourably of the patients' recovery. Taking, then, the whole range of this experience, the writer presumes that upwards of 600 cases² of labour, in which either ether or chloroform has been used, is quite a sufficient number to determine one special effect of etherisation. The question before us concerns the physiological action of a new agent. Does it annul pain? Does it paralyse the uterus? The one effect should be just as observable as the other in every case that it is used; and if we are satisfied that hemorrhage is the consequence of atony of the uterus, flooding, more or less, should be noticed almost as frequently as absence of pain; and yet in these 633 experiments of slight, moderate, and profound etherisation, there is not one single case in which hemorrhage has been clearly proved to be the result either of ehloroform or of ether. It is true that hemorrhage has occurred where chloroform has been administered, just as it has happened where such an agent was never thought of; but the very circumstance that these cases are not in greater proportion than in ordinary cases, whereas it ought to be pointedly the reverse, is the strongest proof that etherisation has no such effect. If, then, this be admitted,

¹ Etherisation in Child-birth (Channing), p. 321.

² The following cases are referred to:—

Dr Channing, - - -	78 cases.
His forty-five correspondents, -	471 ...
Dr Denham, - - -	56 ...
The writer, in present paper, -	21 ...
In a former paper, - - -	7 ...

633 cases.

a question naturally springs up from it that can only be answered by careful and accurate observation. If the uterus be not paralysed by chloroform, why are the intervals of the pains lengthened, the pains themselves weakened, and the labour sometimes suspended, by it? The writer would prefer leaving this question unanswered, because he has no facts from his own experience upon which to found an opinion; but he would suggest as an important and interesting inquiry—the influence of the mind on the action of the uterus. Every practical accoucheur is aware of the power that the parturient woman has by mere mental effort to hasten or to retard her labour. We are daily witnesses of the manner in which she calls to her aid the whole of the respiratory muscles to assist the action of the uterus; we have also evidence of the reflex action of those muscles in aiding the uterus irrespective of the will;¹ there are, therefore, many interesting points to inquire into when we examine the independent action of the uterus. Take away the will, and you remove with it, in many cases, straining efforts, constantly and fruitlessly repeated; this condition is changed for one of perfect repose; the intervals of uterine contractions are lengthened,—they *seem* weaker, or perhaps are suspended until the stimulus of the child excites reflex actions, when they are renewed; this may occur while the patient remains completely soporised, and the patient may be delivered in that state. In another case, the patient may struggle to prevent the pain, and her apprehensions alone will often do so; but let her be unconscious of suffering, and the uterus that before was impeded and embarrassed in its action by the will, acts with increased power when this disturbing cause is removed. Thus may be explained those opposite and apparently contradictory statements—that chloroform weakens and suspends the action of the uterus, and, on the other hand, that it increases its force.

The writer, however, merely throws out these observations to explain the views of the subject that appear to him so interesting, rather than with the intention of giving an absolute opinion upon the question itself. Its importance will be appreciated when it is considered in how many instances, as in Dr Shekleton's case, the removal of the influence of the passions as a disturbing cause, will restore the uterus to its proper order of action, although it may be for a time suspended.

In those cases where chloroform is given in moderate doses, so as merely to diminish pain, but not to destroy consciousness, the action of the uterus is not interrupted, the intervals between the pains are not generally lengthened, and if such should happen, it is because the patient sleeps more profoundly between her pains, and is not kept awake by the aching that often lingers after the last pain. In-

¹ The influence of the reflex nervous function on the uterus, and the effect of chloroform in disturbing it, is at present under examination.

tervals so lengthened are always valuable in hastening the progress of the labour.

With regard, then, to the effect of chloroform on the uterus, the writer concludes:—

1st. That chloroform does not impair the contractile power of the uterus, neither does it interfere with the action of the uterus, unless it be given in very large doses, or that the patient be highly susceptible of its influence.

2nd. That the full anæsthetic effect of chloroform may be produced without paralysing the uterus. The intervals between the pains may be lengthened, or the pains may be suspended, without any loss of power. On the contrary, in such instances, the moment that chloroform is withdrawn, the uterine contractions instantly return with increased force and efficiency. The renewal of the uterine action may occur when the patient is under the influence of chloroform.

3rd. Whether the action of the uterus be temporarily suspended by chloroform—whether it be increased or not interfered with—in every case where the patient had previously suffered agonising pains, and her labour was making an unfavourable progress, chloroform has produced a most salutary change in restoring the proper action of the uterus by which labour was brought to a happy conclusion.

4th. Those effects that indicate want of power in the uterus, viz. great protraction of labour, hemorrhage, retained placenta, &c., have not been proved to be the results of chloroform; on the contrary, where some of these conditions have been observed, there were causes present quite adequate to explain them independently of chloroform.

5th. That degree of etherisation which removes the intensity of pain, without interfering with consciousness, does not interrupt the action of the uterus.

The next question—"Whether the safety of the child is hazarded by the administration of chloroform?" needs only a brief answer in the negative. A sufficient number of cases have been recorded to put this question to the test of proof, because it is very obvious that, if such were its effect, it must be at once noticed by the great increase of infant mortality; and yet, in 540 cases of natural labour, in which either chloroform or ether had been used, not a single child's death is reported; in 179 of these chloroform was inhaled. In 79 cases where different operations were performed, 20 being perforations, the deaths of children were 28, or, deducting perforations, only 8. Eight deaths in 59 cases, or 1 in 7, is rather less than the average infant mortality in forceps operations, which is about 1 in 4 cases.

The following table is formed from the cases reported by Dr Channing, Dr Denham, and the writer.

Natural Labours.

Name.	Cases under		Total.	Children		Mothers	
	Ether.	Chloro-form.		Living.	Dead.	Living.	Dead.
Dr Channing, -	35	14	49	49	...	49	...
45 Correspondents,	325	146	471	471	...	471	...
Dr Denham, -	...	12	12	12	...	12	...
The Writer, -	...	8	8	8	...	8	...
Total, -	360	180	540	540	...	540	...

Operations.

Name.	Cases under		Total	Children		Mothers		Cause.
	Ether.	Chloro-form.		Living.	Dead.	Living.	Dead.	
Dr Channing, Forceps c.	7	2	9	9	...	9	...	Peritonitis. Ectitis.
“ Perforations,	3	...	3	...	3	3	...	
“ Turning,	3	4	7	5	2	7	...	
Dr Denham, Forceps,	...	18	18	17	1	18	...	
“ Perforations,	...	12	12	...	12	10	2	
“ Turning,	...	11	11	8	3	10	1	
The Writer, Forceps,	...	10	10	10	...	10	...	
“ Perforations, ¹	...	5	5	...	5	5	...	
“ Turning, ²	...	4	4	2	2	4	...	
Total,	13	66	79	51	28	76	3	

The third is the most important question—“Whether any ill effects subsequently manifested themselves by which the safety of the patient was compromised?”

So far as the writer's experience is concerned, he cordially adopts the language of Dr Denham: “I must say that I have never met with a single untoward circumstance affecting the health or life of either mother or child, that would, in the slightest degree, deter me from giving it were it thought desirable or necessary. I have never witnessed any of the dreadful evils described by some writers as consequent upon its use. I have never seen the blood blackened, nor the brain poisoned, nor has it ever in my hands induced convulsions, partial paralysis, or still more formidable consequences.”³ Dr Channing observes: “I have spoken now of the treatment of the untoward effects of etherisation, let the circumstances be what they may. What is said can have only a very indirect relation to child-birth, since I know of no case of labour in which the various affections so distinctly referred to have ever been

¹ Including cases in former paper.

² Including cases in former paper.

³ Dublin Journal, August, p. 120.

noticed; on the contrary, they have been confined almost exclusively to minor operations in surgery, as tooth-drawing, nail-drawing, &c.”¹ The writer has not met with a single case where the inhalation of chloroform was followed by coma, convulsions, or other ill effects, described as the necessary consequences of its use; and, notwithstanding what has been so boldly asserted, he has not the smallest hesitation in saying, that *there is not a single case of labour on record where chloroform or etherisation was the cause of death.* All those deaths which have occurred from the use of this agent were the results of its administration, or rather mal-administration, in surgical operations,—cases in which the risk of accident is greatly increased, because a more powerful dose is always required than need ever be given in midwifery practice. It is necessary that the patients be not only insensible to pain and unconscious, but perfectly still; the patients are brought to the very verge of the precipice, and a very little want of caution would very easily throw them over it. In the practice of midwifery they need not be brought near to it. Deaths, however, are said to have “resulted from the employment of anæsthesia during delivery,” which cannot be passed over in silence, not only because of the importance of the question, but that to omit them might be interpreted as a tacit admission of their accuracy. Mr Gream relates a very melancholy case—a death from chloroform—in the following words:—“A most melancholy death resulted in the case of a lady of early age, who gave birth to twins, some miles from London. The first was born, and before the other was expelled, chloroform was administered to her, but she survived the birth only for a period less than an hour.”² There is no account of the manner in which chloroform was administered, nor the quantity given, nor the symptoms that preceded the fatal termination; there was no post-mortem examination, such as took place in other cases of death from chloroform: we have simply to put two facts together—that the lady took chloroform before the birth of her second child, and that she died—*not immediately*—but in less than an hour after its delivery. From these two facts we are required to infer that her death must be from chloroform. Mr Chevalier relates a case that may be compared with this—a delivery that occurred long before chloroform was thought of:—“The last case,” of sudden death, says Mr Chevalier, “occurred lately in a lady who died shortly after having been delivered of twins. I was informed that she had for some time entertained apprehensions that she should not survive her delivery. After the birth of the second child, she appeared a good deal exhausted, and as the discharge of blood *was very moderate*, the accoucheur thought it best to defer the extraction of the placenta. She recovered a little, but, about two hours afterwards, grew suddenly faint, breathed short, and died in about half an hour.”³ A post-mortem

¹ Channing on Etherisation, p. 131.

² Misapplication of Anæsthesia.—Gream, p. 59.

³ Med. Chir. Trans., vol. i., p. 160.

examination of this case was carefully made; "all the viscera were free from disease, the uterine contained the placenta, *with a small quantity of blood*. But all the cavities of the heart were in a state of relaxation, and completely destitute of blood." Had this lady taken chloroform, the writer can imagine the triumph with which it would have been brought forward as a strong instance of its destructive properties, not alone paralysing the voluntary muscles, not merely paralysing the uterus and retarding labour, but here actually paralysing the heart itself, and thus destroying life. As it is, the only difference between the two cases consists in the facts—that one lady took chloroform—the other did not.

Another case, quoted by Mr Gream, was that of "a young lady who had become a wife only within the year. She died at about the end of the second week from her delivery, never once having rallied from the effects of chloroform."¹ Here also is a similar obscurity; we are not given a single symptom to guide us into a knowledge of these fatal effects, not operating, as chloroform is known to do, almost instantaneously, but occupying weeks to develop its mischief. Were there no other causes than chloroform in action that might explain the result? Two other cases have come to Mr Gream's knowledge, as having occurred in the suburbs of London—both under the hands of very skilful practitioners:—"In both cases the effect was direct—in one, death resulted," not immediately, but "very shortly after delivery. In the other, life was prolonged for many days; but the remedies used were of no avail, and the patient sunk without ever having rallied from a state of utter prostration."² These cases are equally imperfect as the former, no account of them, in fact, has been given, because the gentleman who quotes them "regrets, by any direct allusion to these cases, to increase the feelings of remorse that have since been entertained at having listened to the encouraging accounts given of the effects of chloroform, and acted upon them without considering the dangers and waiting for experience to prove or disprove their liability to the destruction of life."³ But the writer takes leave to say that this is no excuse. Any conscientious practitioner would feel it his duty, however painful it might be, to give the fullest report of such a case, in order that it might be fully investigated, proved, or disproved. He is bound to prevent other practitioners being led away, like himself, by these "encouraging accounts," by telling them faithfully, candidly, and clearly, the dangers that he incurred by the use of chloroform. If the writer is asked to believe in such cases, so totally opposed to his own experience and to that of others, he demands, at least, a faithful and exact narrative of them; but it can hardly be expected that he should give credence to such loose statements, that look much more like the "*lenes susurri*" that are meant to whisper down the character of a valuable remedy,

¹ Misapplication of Chloroform.—Gream, p. 59.

² Op. cit., p. 61.

³ Op. cit., p. 61.

than those honest objections which would instruct us in forming a true estimate of its worth. In such deaths from chloroform

Credat Judæus Apella. Non Ego.

Other deaths from convulsions, from ruptured uterus, and puerperal fever, are quoted as deaths from chloroform, simply because chloroform happened to be administered. The writer has carefully perused these cases, and can find nothing in them different from similar cases that have been reported, but in which no anæsthetic had been given. He feels, therefore, the more confidence in repeating, that there is not a single well-authenticated death from anæsthesia in the practice of midwifery. In making this assertion, however, he by no means wishes to imply that such an accident is impossible. On the contrary, when the powerful nature of the agent is considered—when we reflect on our imperfect knowledge of its properties, and the want of uniformity and precision in the mode of its administration—we can only attribute its comparative safety in obstetric practice to the very small quantity of the anæsthetic that is necessary to produce the desired effect—a limit which the instinctive caution of the accoucheur will prevent him ever exceeding. All the deaths from chloroform have occurred either during surgical operations, or from the reckless experiments of individuals on themselves, and these have been instantaneous. While, therefore, the writer is far from denying the possibility of death from chloroform in the practice of midwifery, he cannot admit the accuracy of those that have been thus brought forward; and he would add, with great respect to those gentlemen who relate these so-called “deaths from chloroform,” that if not accurate, they should never have been advanced as evidence. To do so, is an act of injustice equally to the profession and to the public. To the former, because, deceived by such statements, they yield themselves up too readily to the prejudice that always exists against novelties, and decide without investigation against what they are told is so dangerous; while those who do venture to examine this new agent, who dare to use it, and who are bold enough to declare in its favour, have these false facts thrown in their teeth as proofs of their reckless indifference to human life. To the latter it is equally unjust, because, on the authority of such bold assertions, a means of relief is withheld from them, which they have a full right to expect is only denied them because of the certainty of its danger; but when there is proof amounting to demonstration that this relief may be afforded, not only without danger of a fatal result but with positive advantage to themselves, the opponent who rests his assertions on such factitious evidence incurs a serious responsibility—he not merely deceives himself, but leads the public, who are ignorant on these matters, altogether astray.

In making these observations, the writer is very far from wishing to stifle a fair and impartial inquiry into this question. So far from this, he is convinced that such an inquiry is precisely that which is

so much wanted. Enthusiasm is warring against prejudice, and the anxious observer of the conflict can see little or nothing through the clouds of sophisms and false facts that surround it. Sooner or later these will descend to their proper level, and the truth will be revealed; but it is obviously desirable to hasten that period, and to discourage assertions on either side that bear not upon them the stamp of perfect impartiality. The enthusiast who witnesses new and important phenomena, leading to most valuable results, may perhaps be pardoned if he is a little dazzled by the bright discovery, and fails to observe the spots on its disc. But he who will not use chloroform—the opponent who will not examine for himself—who will not look, or perhaps who, blinded by his prejudice, cannot see, should not be believed when he exclaims that all is darkness.

Having made allusion to those cases that are not “deaths from chloroform,” the writer would briefly refer to those that are. Certain deaths have taken place, about which there cannot be a doubt that chloroform was the cause, and it is desirable to examine in what manner it becomes fatal. In other words, we should know and study the precise action of chloroform on the constitution, in order to determine the limit between danger and safety. The researches and experiments of Dr Snow, Mr Nunneley, Mr Wakley, and M. Gosselin, afford abundant information and assistance in such an inquiry. All the deaths that have been caused by chloroform—the deaths at Newcastle, Cincinnati, Hyderabad, Boulogne, Lyons, Westminster, Guy’s Hospital—all agree in one fact, the deaths were sudden, and happened when the patient was completely narcotised by the vapour. When the degree of narcotism is not so great as to cause death, and the vapour is withdrawn, the patient soon recovers completely from its effects, and is quite as well as before. This is also proved by numerous experiments on the lower animals, some being destroyed in less than two minutes, others being brought nearly to the fatal point of narcotism, but recovering completely the moment the vapour was removed. With one or two exceptions, that may be explained by the manner in which chloroform was inhaled by the animal, there are no examples of protracted recoveries or of lingering deaths. The same conclusion may be inferred from the records of surgical practice. Chloroform has not lost favour in surgery, and if its use were followed by depression and prostration of the powers of the constitution after surgical operations, this fact alone would be a capital objection to its administration in such cases. No surgeon would use a means to save his patient the pain of an operation that would render the operation itself unsuccessful; but so far is chloroform from being proved to have such an effect, that the evidence is quite the other way. The statistics of surgical practice, the testimony of Mr Curling, Mr Miller, and others, demonstrate that chloroform is useful, not merely as a means of saving the patient pain, but of promoting his recovery. The nature of the vapour and its action on

the tissues, leads us to the same inference as to its operation on the constitution.

Chloroform is very volatile and very insoluble, as Dr Snow has fully explained in his valuable monographs on the subject. Mr Nunneley's experiments point out its local action. When applied to the skin, or any of the tissues, its immediate effect is, "to induce redness, some tumefaction and paralysis, with loss of feeling of the part which has been exposed to its influence." Bearing in mind these three facts, its action may be understood. The vapour of chloroform, diluted with atmospheric air according to the strength of the dose, when drawn into the lungs, is rapidly diffused over an immense extent of mucous surface, surrounded on all sides by innumerable blood-vessels and nervous fibrillæ. It first acts as a stimulant, exciting cough, hurried breathing, a sense of choking, cerebral excitement, and even convulsions; but this effect is almost instantly followed by the sedative influence of the vapour. When chloroform is perfectly pure, the stage of stimulation is scarcely noticed, being so rapidly succeeded by anæsthesia; but if impure, it is the reverse,—which proves the importance of attending to the quality of the chloroform that is used, if we would wish to measure accurately its effects. In the lungs it is brought into immediate contact with the ultimate ramifications of the nerves and blood-vessels that surround the vesicles, and passing through these, it is taken into the pulmonary circulation. Mr Nunneley¹ "is inclined to think the action is primarily in all cases, and principally, if not entirely, upon the nerves;" and if so, the sedative effect is instantly communicated to the cerebro-spinal axis, and from thence reflected over the whole of the sentient nerves. Such, however, is not the effect when locally applied elsewhere—the loss of sensation seems quite confined to the part, or to progress but slowly over the body; the extent of nervous surface exposed in the lungs, as compared with other parts, may, however, account for this difference. Dr Snow has shown, by experiments very carefully conducted, that the vapour of chloroform is absorbed into the blood, and that the quantity absorbed bears a fixed proportion to that which is inhaled. He gives a formula, also, by which the quantity of this and other vapours contained in blood may be ascertained; and he proves that those fluids which are least soluble in the blood, and the most volatile, act with the greatest power. Chloroform possesses both these properties. It is very volatile, and is therefore rapidly diffused. It is only slightly soluble in the serum of blood, and consequently the blood dissolves much less than it absorbs. This will explain the rapidity of its action; because a certain portion, being free, is immediately conveyed from the lungs to the heart, and from thence throughout the whole circulation. It will also account for the slight change that takes place in the blood, in

¹ Transactions of the Provincial Medical and Surgical Association, vol. xvi., pp. 11, 358.

proportion to the effect produced. In surgical operations the colour of the blood is unaltered. In animals that have been promptly killed by it, the lungs retain their scarlet colour; nor is it until the respiration is impeded by the vapour, while the heart is acting and distending the lung, or that the animal is exposed a very long time to its influence, that we perceive any real change in the colour or consistency of the blood. The rapidity with which its effects disappear may also be understood on the same principle. The moment that chloroform ceases to be inhaled, it quickly escapes from the circulation, and is exhaled, leaving only a small portion behind to separate more slowly. In this respect chloroform differs essentially from alcohol, and may be contrasted with it. Alcohol being very soluble in blood, mixes with it freely, and circulates at the rate of the blood itself, hence it is comparatively slow in its operation; when inhaled, it produces little or no effect. We all know its effect when taken into the stomach—its powerful action as a stimulant, but having no anæsthetic effect, unless taken in large quantities. The two hydrocarbons may be placed side by side.

CHLOROFORM.

Slightly soluble in serum.
 Very slightly stimulating.
 A most powerful sedative, even in small doses.
 Its effects rapidly disappear.
 Most powerful when inhaled.
 Comparatively slight effect when administered by the stomach.
 No alteration in the appearance of the brain in cases where it has caused death rapidly.

ALCOHOL.

Soluble to any extent.
 Highly stimulating.
 No sedative effect, unless when taken in large quantities.
 Its effects continue for hours.
 Least powerful when inhaled.
 Effect most powerful when taken into the stomach.
 Apoplectic congestion of the brain where it has been fatal.

Such are the differences in the effects of these fluids, and yet we are told that the insensibility of chloroform is only another term for intoxication. The amount of solubility in the blood seems to be a most important item in estimating the effect of anæsthetic agents. Their stimulant action appears to be in direct proportion to their solubility, their sedative power to be in inverse proportion. If we assume that a free undissolved portion of chloroform passes rapidly from the lungs to the heart, and thence throughout all the vessels of the body, its effects on the constitution may be understood. First on its arrival at the heart, a safe dose will only act as a stimulant, or perhaps not at all. In some cases where the patient is previously excited by apprehension, and the heart, in consequence, pulsates rapidly, chloroform may reduce these pulsations by controlling the mental excitement; but this is very different from the slower and *feebler* beat that is the result of its sedative effect. This symptom is most important to attend to, because sudden death is the consequence if the heart's action be suspended—the syncope of chloroform is fatal; and if too concentrated a dose be inhaled, the excess

of free chloroform may be so great as at once to paralyse the heart. The brain gives evidence of its effect in loss of consciousness, the medulla oblongata in slow deep stertorous respiration, the spinal marrow in more or less perfect loss of sensation and motion, and in the dying activity of reflex action. The different degrees of its influence on the vital functions have been fully pointed out by Dr Snow; but that effect which has the most important relation to our present subject is the independence of sensation and consciousness. Mr Nunneley observes, as the result of several experiments, that "the animal, after recovering from sopor, is often conscious long before there is any muscular power or even much sensation; indeed, after a moderate dose, or when the dose is not sufficient to induce a complete state of anæsthesia, consciousness remains where there is no power of motion and but little sensation, as everybody who has inhaled any of these substances knows."¹ This effect has been frequently noticed by the writer, and seems to him to be one of its most valuable actions in obstetric practice. A moderate dose will diminish if not remove sensation, without destroying consciousness. The patient is afforded relief from the extreme intensity of her sufferings, without being put to sleep, and also by a dose of chloroform that may be given without the slightest risk. The reverse of this sometimes happens under more full doses—consciousness is lost, but sensation remains—a metaphysical difficulty certainly, but which, nevertheless, seems to be true. In one of the cases related, the patient complained of her back, placed her hand upon it, seemed to feel the full force of her pains, but, after her delivery, knew nothing about it—she said "she *felt* no pain." When death takes place, the influence of chloroform on the vital functions may be either progressive or simultaneous. Loss of sensation, motion, and consciousness, may be followed by stertorous, laboured, feeble respiration, and this by the gradual cessation of the heart's action; or they may occur all at the same moment, the pulse, respiration, and consciousness, ceasing together. Hence the post-mortem appearances in man and the lower animals vary, and are influenced very much by the rapidity of the effect. After the most powerful doses, the lungs are collapsed; the heart flaccid and empty, or the right side *moderately* distended by the cavæ, and the left ventricle contracted by the rigor-mortis; the brain is natural. When death is less instantaneous, the lungs are congested, ecchymosed, emphysematous; the right side of the heart and cavæ distended, sometimes enormously; the sinuses and membranes of the brain filled with blood.

This brief review of the action of chloroform on the animal economy leads us to the same inference as to its effects,—That the constitution is quickly brought under its influence, even to a nar-

cotism that may be fatal, but that it rapidly recovers itself when the vapour is withdrawn. This evidence it is hoped is sufficient to prove that chloroform does not necessarily cause depression or prostration of the vital powers. In the practice of midwifery the writer never has had occasion to regret the use of chloroform, because the patient's recovery was retarded or her health impaired; on the contrary, its chief value in his experience has been the rapidity with which the parturient woman's health has been restored when she was freed from the *depressing effects* of protracted and severe suffering. We may dispute about the necessity or the propriety of relieving the pains of childbirth, but none will question the propriety of promoting the patient's restoration to health, in whatever way we find that it may be best accomplished.

Dr Channing gives stronger evidence, because it is derived from a more enlarged experience of anæsthesia and its effects. He gives not only his own results, but those of his correspondents, every one of whom were requested to answer the important queries before alluded to. Whether they observed, "7, any special effects, physical, moral, or intellectual?—8, any apparent danger?—and to state the (9) results to mother, both immediately after delivery and later?" In reply to these questions, they mention, as special effects, unusual excitement in some cases, interruption and suspension of the action of the uterus in others; but the invariable answers to the two last questions were, "no apparent danger," "mother and child well." They allude to differences of effect while the patient was under the influence of the agent, but are perfectly silent as to any subsequent mischief. These witnesses were not all advocates of etherisation; on the contrary, some were evidently doubtful of the propriety of adopting it, and therefore their testimony may be received with more confidence. With a similar object, the American Medical Association appointed a committee to make inquiries on this subject, and to report upon it. They state that "the anæsthetic agents, ether and chloroform, have now been used in perhaps 2000 cases of midwifery, and, so far as the committee have been able to learn, without a single fatal, and very few, if any, untoward results. The committee, in a very extensive correspondence with physicians in various parts of the country, have found an entire unanimity of opinion among those who have tried these agents as to their favourable effect, both in advancing the progress of labour, and in relieving the sufferings of the patient."¹ It might, perhaps, be advanced, as an additional proof of the safety of chloroform, that its opponents have not given a single case accurately detailed in which subsequent unfavourable symptoms were clearly proved to result from chloroform. There has been no lack of general statements such as we have quoted, but there is no connected history of symptoms that can at all aid us in tracing out the mischievous influence asserted, nor can

¹ Medical Gazette, Dec. 1, 1848.

we perceive the relation of cause and effect in the same clear manner that is observed when the patient is under its immediate influence. There is the same difficulty in assigning chloroform as the cause of those unfavourable symptoms, as there is in attributing to it the deaths from puerperal fever and ruptured uterus.

Our knowledge of the properties and effects of this agent can only be acquired from facts accurately stated, but when those facts are mystified in general expressions of certain unfavourable results, they are valueless. It might, therefore, be asserted that the opponents of chloroform have no such facts to bring forward, and cloak such as they have in an ominous veil of mystery, so as to increase our dread of this agent; but the writer is very far from wishing to do so. Chloroform has no immunity from those accidents to which other and similar poisons are liable. Opium, aconite, belladonna, and hydrocyanic acid, are known as powerful poisons, and most useful remedies; they are known, also, to disagree with certain constitutions, and to produce protracted and distressing symptoms; such is the case with almost every remedy in use: a few grains of blue pill has caused a profuse and exhausting salivation; the writer has known a desert spoonful of castor oil excite violent catharsis. Chloroform, therefore, cannot be an exception to this general principle; it must disagree with certain constitutions, and if no case had ever been quoted to prove its injurious properties, we should nevertheless feel assured that some such cases must arise when it is more generally used; but it would be just as absurd to decide against chloroform on the strength of such cases, as it would be to prohibit opium, mercury, or castor oil, because they sometimes act violently on peculiar habits. The writer will not deny that in certain temperaments, in constitutional idiosyncrasies, chloroform may produce most troublesome and unpleasant symptoms long after it has been inhaled, but these cases must be considered by themselves. They must not be put forward as one of many examples of a common effect. It is very desirable that we should know everything about such cases; we should be informed precisely what the symptoms were, how soon they appeared, the quantity of chloroform administered, the manner in which it was given, its immediate effects, and, above all, the previous history of the patient, both in respect to her general health and constitutional peculiarities. We have a right to demand a faithful account of them, not merely for the purpose of satisfying a doubt of their accuracy, still less with the object of intimidating the practitioner from the use of chloroform, but in order to guide him in the administration of this agent, and to prevent the uncertainty that arises from contradictory statements. At present all is confusion. We are told that chloroform causes convulsions, and cures convulsions. It is said to excite the hysterical patient to the degree of delirium, and even insanity—and that it tranquillises her. Chloroform causes prostration and depression of the vital powers after delivery; chloroform has a precisely opposite

effect, because it prevents the depressing effect of long-continued and severe pain. How is the unbiassed practitioner to decide between these contradictory statements, but by a careful examination of the facts themselves, by comparing these facts with his own observations, and deriving from the whole the truth? How can he do so if the details of such facts are not placed faithfully before him?

The disordered action of these ethers is an inquiry quite as interesting as their anæsthetic properties, but the time has not arrived when it can be dispassionately entered upon. At present, everything connected with etherisation is either branded with "*Hic niger est*," or adorned *à la couleur de rose*; the facts are therefore suspicious. There are some questions, however, well worthy an attentive examination, which the writer can only propose, without venturing upon their solution. Does chloroform produce any *permanent* effect on the nerves? Mr Nunneley¹ remarks, as the result of his experience, — "The persistence for days of the partial loss of sensation and motion in a finger which has been immersed in an anæsthetic substance (as I have had in my own finger). * * * And what is curious, I have sometimes observed it intermittent, returning for four or five evenings (corresponding with the time of immersion), far more perceptibly than in the intermediate periods."² Perhaps such may be its effect on the nervous centres in some cases after inhalation, causing periodic headache, and other disagreeable sensations. If this be true, what constitutions are most liable to this irregular influence? Susceptibility to the influence of chloroform differs remarkably in different constitutions. It would seem to be inversely as the strength of the individual. Mr Nunn's patient, in Westminster, was a strong labouring man. "Half an ounce of chloroform was used on a handkerchief, with the effect of causing only excitement; insensibility was not induced."³ A lady called upon Mr Nunneley while suffering from a paroxysm of tic-doloreux, to have immediate relief. "I rubbed upon the face," says Mr N., "not more than twenty minims of chloroform, with success, but while doing so, another lady who had accompanied her, and stood near, complained of feeling the effect of it. On leaving my house, instead of proceeding to some shops, as intended, the head of the second lady became so confused and giddy, that she was obliged to make the best of her way home again; indeed, she walked so unsteadily, that she afterwards told me she was quite afraid of being supposed drunk. She laid down and slept for several hours. This lady was one of a family of the most highly hysterical diathesis I ever met with."⁴ Another equally important question is the effect of chloroform on the blood. It has been proved that the full anæsthetic effect of chloroform, and even death, may be

¹ Transactions of the Provincial Medical and Surgical Association, vol. xvi., pp. 11, 293.

² Ibid, p. 361.

³ Dr Snow on fatal cases of inhalation, p. 12.

⁴ Transactions of the Provincial Medical and Surgical Association, vol. xvi., pp. 11, 374.

induced without the colour of the blood or its consistence being altered ; but in some fatal cases the blood was dark and fluid. In animals that have been completely soporised, not once, but several times, the same was observed. In each successive experiment, the same dose of chloroform more easily soporised the animal, until the last dose promptly destroyed it. An interval of several hours, and sometimes days, elapsed between each experiment, sufficient to remove every atom of chloroform which might be in combination ; yet, in the post-mortem inspection, the blood was darker and more fluid. Its coagulation was looser and softer, and every organ was highly congested.¹ It may be chloroform—it may be the imperfect oxydation of the blood—that produces this alteration ; whichever be true, the question is well worthy an attentive examination.

While on this part of the subject, the writer is very reluctantly obliged to make some allusion to one effect attributed to chloroform, which, although this agent might be perfectly free from danger or risk, nay, although it might be administered with considerable benefit in practice, nevertheless, if it were true, would constitute an insurmountable objection to its adoption. The objection is best explained by the following passage from a pamphlet on the subject :—“ As to dreams that occur in the second degree of inhalation, I may mention that, in a former pamphlet, after having stated that there was evidence of sexual excitement in some of those who had been etherised, I wrote thus—‘ The facts alluded to I do not think it right to relate in detail. It is sufficient to say that they are unfit for publication in a pamphlet that may fall into the hands of persons not belonging to the medical profession. I will assure those readers that they would create disgust unequalled by any other occurrence in life ; that the bare thought of their relatives or themselves (if females), having been subjected to such revolting influences, would make them ever afterwards shrink from the observation of the world.’ ” It would have been well if the author of this paragraph had exercised the same reserve in making allusion to such a subject, as at first he had done in withholding his facts. But his assertions being questioned, we now have the assertion and the facts both together. “ The facts recorded presently, regarding these dreams, will make manifest the truth of my former observations.” In search of these facts, however, we have to wend our way through a physiological discussion on the seat of the sexual passion in the brain, and the reflex action upon it of the generative organs, through the reviews of journals, where allusion is made to sexual excitement in surgical operations, until we arrived at just two facts in support of the statement. One, a case of Baron du Bois, taken from the “ *Lancet*.”²

¹ *Vide* Mr Nunneley's experiments, 9, 10, 11, 12, *op. cit.*, p. 179.

² The case is as follows :—“ After the expulsion of the fœtus, the mother thanked me mildly for the relief I had afforded her. When I asked her how she felt—if she remembered what had passed ? she answered that she felt very

The patient did not use a single indecent expression, but said that "she dreamt," and after a cross-examination by the Baron as to the nature of the dream, in which he was obliged to have recourse to the intermediate communication of a respectable person of her own sex, she acknowledged that she dreamt "that she was with her husband." Another instance is related by an anonymous correspondent. "In one instance only (a midwifery case), the woman appeared to mistake my manual interference in assisting her in labour, for a liberty taken with her person, and she screamed out, 'Don't, you beast, do that! don't be such a beast!'" This was, of course, distressing and unseemly. "One lady hummed a polka air, and assured me she was very fond of me, but this was only for a few seconds!"¹ These are the only two cases (and collected from all possible sources) in which anything approaching to sexual excitement occurred in midwifery practice, and are the sole evidence advanced to prove the revolting influence of etherisation in childbirth. The reader can judge how far such testimony would authorise the insinuation conveyed in the paragraph quoted as to the general effect of chloroform.

The writer should not have alluded to such a subject if he had not made this asserted fact the object of his closest attention, and finding it to be perfectly without foundation, he feels bound to give the strongest denial to the statement founded upon it. It may be possible that in the lowest, the most degraded, the most unfortunate class of society, instances may be found in which, when the restraint of reason is removed, when the barrier is withdrawn that keeps in check the pollutions of the contaminated mind, a foul and loathsome stream of filthiness may issue forth, well calculated to create disgust. But that chloroform produces such an effect in any, the very lowest, rank of well ordered society, the writer believes to be utterly untrue. He can most conscientiously declare, that he has not met with a single instance in which anything approaching to indecency of expression or manner has been observed. Patients have occasionally become incoherent, and in their ramblings have talked of their domestic concerns—of their amusements; they have sung—they have prayed, but not one made use of a single offensive expression. Dr Denham gives similar testimony—"Another, who required a very large quantity to affect her, became very loquacious, and spoke of domestic broils, and of money matters. But in no case did we hear an

well, and that she dreamt. What did you dream of? was my question; but the patient turned her face aside with a smile, the peculiarity of which having drawn my particular attention, I renewed my question, but on her again having refused to let me know the nature of the dream, I had recourse, in order to ascertain it, to the intermediary communication of a respectable person of her own sex, and who was present at the operation of inhaling ether. To the same question being renewed, she answered, she had dreamt that she was beside her husband, and that he and herself had been simultaneously engaged going through those preliminaries which had led her to the state in which we now beheld her."—*Misapplication of Anæsthesia*, p. 36.

¹ *Misapplication of Anæsthesia*, p. 40.

immodest remark, or one calculated to offend the most delicate ear, nor did we ever observe the slightest approach to sexual excitement. We are therefore inclined to receive with caution the disgusting details and indecent stories told of patients while under the influence of chloroform.”¹

Having thus reviewed the whole of the facts bearing upon the third query respecting the safety of the patient, and the subsequent ill effects of chloroform, the writer has not the least hesitation in asserting, that there is no danger, present or future, from its judicious use. No proof whatever is given to establish the injurious consequences that result from the inhalation of chloroform. It is only by bringing forward exceptional cases to the exclusion of all the rest, that such assertions can be supported; cases in which a constitutional idiosyncrasy may render chloroform mischievous, in the same manner as the most popular remedies are sometimes known to act as poisons.

The safety of chloroform in the practice of midwifery, the writer believes to consist in the very small quantity of the vapour that is required to accomplish the desired object. Its obstetric use differs in this respect essentially from that in surgical practice.

In natural labour, the full anæsthetic influence of chloroform may certainly be safely induced, but it does not appear to the writer necessary to go at all so far. It seems to him sufficient to diminish the intensity of the pains. This may be accomplished without putting the patient to sleep, without even disturbing, in the least degree, her self-possession; perfect consciousness may remain, and yet the agony of suffering be completely subdued; when chloroform is given for this purpose, the quantity is so small, that no interruption to the action of the uterus could be produced; whenever this has happened, the dose has been sufficient to soporise the patient, but even here such an effect was only temporary, and passed away with the chloroform, when the uterine contractions returned with more power and efficiency than before it was inhaled. In order to subdue the pains of natural labour, the writer generally pours about a drachm of chloroform on the sponge of a small inhaler.² This is applied to the mouth alone, by which means atmospheric air is freely mixed with the chloroform, a certain portion passing into the mouth with the vapour, while the customary tract for respiration remains perfectly free. The quantity of chloroform really admitted into the lungs, diffused as it is in so large a quantity of air, must be very small—so small as not to excite the least sense of suffocation in its passage. If this quantity produce no effect, the dose is increased until it become sufficiently pungent to render the inhalation rather difficult. Its strength should always be tested before being given to the patient: a single inspiration will be sufficient to prove this. If the very moderate quantity first used should act with a power disproportioned to the dose; if it

¹ Dublin Journal, August, p. 138. ² The inhaler of Steevens and Pratt.

excite the patient, produce incoherency, or interfere with the action of the uterus, chloroform should be at once withdrawn. The time usually selected for its administration is in the second stage of labour, when the pains are increasing to their highest degree of intensity.

In operative midwifery, a more powerful dose is requisite. In such cases the writer prefers the inhaler of Dr Snow, by which the quantity of chloroform given can be accurately measured. When used by Dr Simpson, or those who are perfectly conversant with the effects of chloroform, the handkerchief is certainly safe; besides, it is convenient and most efficient; but in the hands of the profession at large, it appears to the writer to be the most hazardous method of administration that can be employed. As a proof of this, it is sufficient to say, that in all the fatal cases reported, with two exceptions, chloroform was given on a handkerchief or cloth. Dr Snow's inhaler being applied to the mouth and nose, inhalation is continued until sensation and consciousness are lost. If the patient become restless or incoherent, the dose must be increased, and a very few inspirations will be sufficient to produce sopor. The moment that the desired effect is obtained, inhalation should be discontinued, and not again renewed until there is some evidence that the influence of chloroform is disappearing. It should then be repeated only at intervals, according as it is necessary to maintain the effect. The quantity of chloroform consumed in these cases is greater than in natural labours, but the time of inhalation is much shorter, and in this respect more resembles surgical operations, with this difference, that in obstetric operations the degree of anæsthesia need not be so great. The perfect stillness essential to the success of an operation where the scalpel is cutting its way through the very springs of life, is not required for midwifery practice.

The importance of using pure chloroform is alluded to by every writer who has paid any attention to the subject. Pure chloroform should contain no oxygen, and the more it approaches to chloric ether, and to the properties of alcohol, the more exciting it becomes. Hence it is probable, that in those cases where much excitement was manifested, the effect might be attributed to the impurity of the chloroform employed. On the other hand, it should be remembered, that perfectly pure chloroform is most prompt in producing its sedative effect, and therefore it should not be recklessly administered. When the quantity of chloroform inhaled is sufficient for the purpose, it may be known by observing the pulse, the respiration, the voluntary muscles, and the eye. The pulse—that may have been increased—becomes slower and *fuller*. The respiration, also, is slower and deeper, as in sleep. The voluntary muscles have lost their power,—the arm drops. The eyes are inclined upwards; the pupil is sometimes dilated, but always contracts sluggishly. If the quantity is more than enough, the pulse may not only be slower, but *feebler*; a symptom which should never be passed over. The respiration becomes stertorous. In surgical operations this degree of narcotism is

generally required, but it is not so in obstetric practice. Spasmodic contractions of the voluntary muscles may occur. As soon as the respiration becomes slow, deep, and regular, chloroform may be withdrawn, because its action will continue to increase for some time afterwards. If it should not do so, it can be renewed. By allowing sufficient time for chloroform to develop itself, and by ordinary attention to its effects, the practitioner can scarcely err in its administration.

The writer having given the subject of anæsthesia his best attention, he feels perfectly assured that chloroform neither impairs the contractile power of the uterus, nor injures in any way either the mother or the child; and that if ordinary caution be used, and if the administrator is conversant with the properties and the effects of the agent he is employing, there is no risk whatever in the administration of chloroform. But at the same time it must be understood that these conditions are absolutely essential. The closest attention should be paid to the manner in which the influence of chloroform is developing itself, and equal care should be given to the quality of the chloroform that is used.

Having satisfied himself that it can be given with safety, he feels that he is not only justified but bound to afford his patient that relief from the anguish of her suffering, which, in no other way, can be afforded her.

It is incorrect to consider the intensity of suffering—the agony that is often endured by the parturient woman—as a merely physiological or normal pain. The writer believes it to be, in the strictest sense of the term, a pathological or abnormal pain, the result of a higher degree of nervous irritability than exists in a perfectly healthy constitution. Further than this, the pains are more prolonged and intense than normal pains would be, because there are so many causes in operation, the result of our civilised and therefore *unnatural* habits, that render parturition much more severe than a perfectly natural labour would be. The diminution of the intense suffering of the parturient woman accomplishes more, much more, than merely saving her the agony of enduring it. It prevents the depression and exhaustion that are the consequence of intense and long-continued pains, and thus enables the constitution to recover itself much more rapidly than otherwise it would do. In fact, by bringing the amount of suffering nearer to what might be considered the true normal pains of labour, the recovery of the patient is proportionably favourable.

In conclusion, when he is satisfied that such benefits may be obtained through the medium of chloroform, the writer can feel no regret or self-reproach in employing it, although it might so happen that one case in a thousand may manifest its disordered action.

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